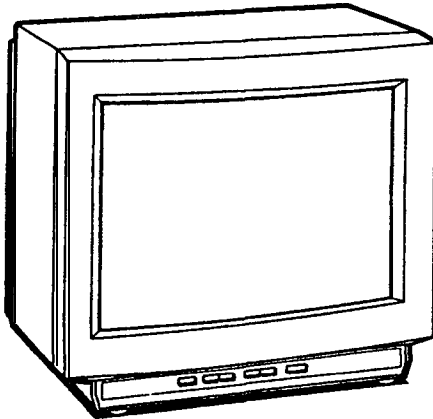


KV-13TR27

RM - 7 8 1

SERVICE MANUAL



US Model

Chassis No. SCC-D37L-A

Canadian Model

Chassis No. SCC-D36H-A

P-3B CHASSIS

MODELS OF THE SAME SERIES

KV-13TR24X

KV-13TR14/13TR24

SPECIFICATIONS

| | |
|----------------------|---|
| Television system | American TV standards |
| Channel coverage | VHF : 2-13 UHF : 14-69 Cable TV : 1-125 |
| Picture tube | Mirror black Trinitron tube 13-inch picture tube measured diagonally 14-inch picture tube measured diagonally |
| Input | VIDEO IN (phono jack) : 1Vp-p , 75ohms unbalanced, sync negative AUDIO IN(phono jack) : 408mVrms (100% modulation) impedance : 47k ohms |
| Power requirements | 120V AC, 60Hz |
| Power consumption | 97W (Max.) 3W (STAND BY) |
| Accessories supplied | Remote Commander RM-781 with 2 size AA (R6) batteries VHF/UHF telescopic dipole antenna (1) Antenna connector (1) |
| Optional accessories | U/V mixer EAC-66 Connecting cord VMC-606M/607M, etc. |
| Speaker size : | 77mm X 1 |

| | |
|-------------------|--|
| Speaker Impedance | 8Ω |
| Speaker Wattage | Approx. 2W |
| Dimensions | Approx. 356X 331 X 407 mm (w/h/d) |
| Weight | Approx. 10.5kg |

Designs and specifications are subject to change without notice.



TRINITRON® COLORTV
SONY®

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WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.

THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!


COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION!!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE.

LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

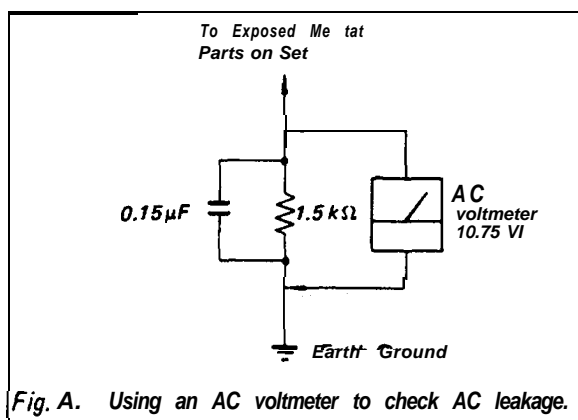
LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLODÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DE "CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIÉS DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES. OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.

SAFETY CHECK-OUT

(US Model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. **Check the entire** board surface for solder splashes and bridges.
2. Check the **interboard** wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the **monopole** antenna (if any).
Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and' recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, **metal** trim, "**metallized**" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.



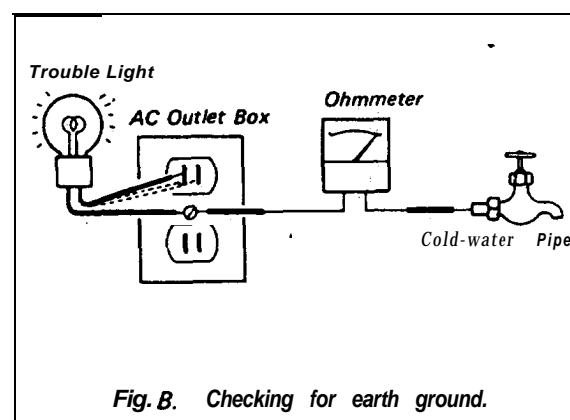
LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA **WT-540A**. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data **Precision** 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V , so analog meters must have an accurate **low-voltage** scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

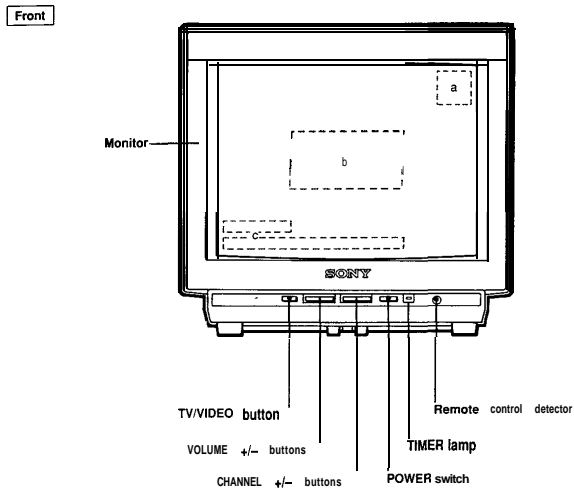
A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC **outlet** boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a **cold-water** pipe with an ohmmeter. The reading should be zero **ohms**. If a cold-water pipe is not accessible, connect a 60-100 **watts** trouble light (not a neon lamp) between the hot side of the receptacle and the **retaining screw**. Try both slots, if necessary, to locate **the hot side** of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)



SECTION 1
GENERAL

H. LOCATION OF CONTROLS

Refer to the page indicated in ● for details



On-screen displays

a) ● Channel numbers

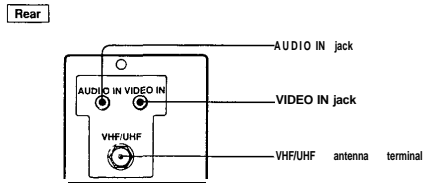
• "MUTING" or "SLEEP" indication

• "VIDEO" indication

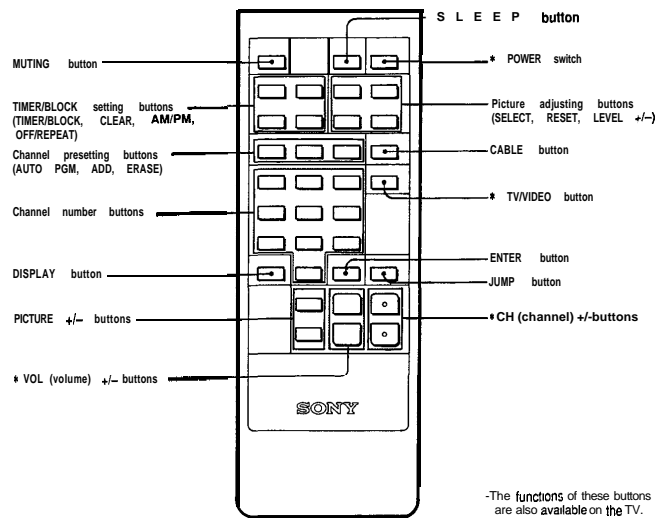
b) ● "AUTO PROGRAM", "TIMER" or "TIMER BLOCK" indication

c) ● Bar display for volume or picture adjustment

• Current time for Timer/Block

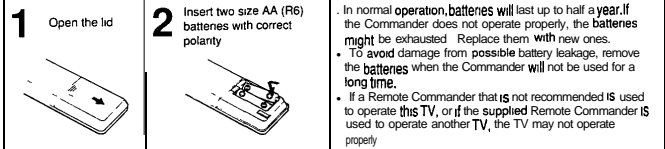


Remote Commander RM-781



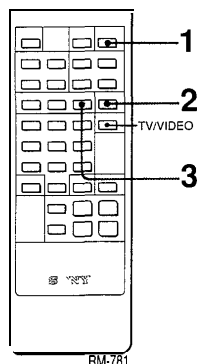
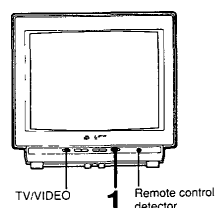
The functions of these buttons are also available on the TV.

Battery installation



I-2. PRESETTING TV CHANNELS

To Preset All Receivable Channels Automatically



- 1 Press POWER on the TV or the Remote Commander to turn the TV on.
- 2 Press CABLE so that the appropriate mode appears.

To preset VHF or UHF channels

To preset cable TV channels
- 3 Press AUTO PGM.

"AUTO PROGRAM" is displayed on the screen and receivable channels (other than the channels already preset) will be preset in numerical sequence. The channels previously preset remain in the unit's memory. When no more channels can be found the programming stops and the lowest numbered channel is displayed.

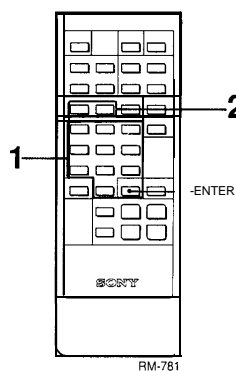
Receivable channels of this TV are:
 VHF 2-13
 UHF 14-69
 Cable 1-125

To add the channels that could not be preset with automatic programming because their signal strength was too weak or to erase unnecessary channels, follow the steps in To preset only the desired channels on the next page.

To check Preset channels
 Press CH +/-

If the "VIDEO" indication is displayed on the screen
 Press the TV/VIDEO button on the TV or the Remote Commander so that a channel number appears.

To Preset Only the Desired Channel or to Erase Unnecessary Channels



- 1 Press the channel number button(s) and then ENTER to select the channel to be added or erased.

To preset VHF or UHF channels

To preset cable TV channels
- 2 To add channels - Press ADD.

ADD
 a

A "+" appears for a moment. This channel has now been added to the channel scan memory.

To erase channels - Press ERASE.

ERASE
 b

A "-" appears for a moment. This channel has now been erased from the channel scan memory. The next time the CH +/- button is pressed this channel will be skipped.

Repeat steps 1 and 2 for other channels to be added or erased.

When a VHF or UHF channel is erased

The cable TV channel with the same number is also erased and vice versa.

| Number on this TV | 1 | 5 | 6 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|----------------------------|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| Corresponding CATV channel | A-8 | A-7 | A-6 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 |
| R | S | T | U | V | W | W-1 | W-2 | W-3 | W-4 | W-5 | W-6 | W-7 | W-8 | W-9 | W-10 | W-11 | W-12 | W-13 | W-14 | W-15 |

Check with your local cable TV company for more complete information on the available channels.

Note

Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connection.

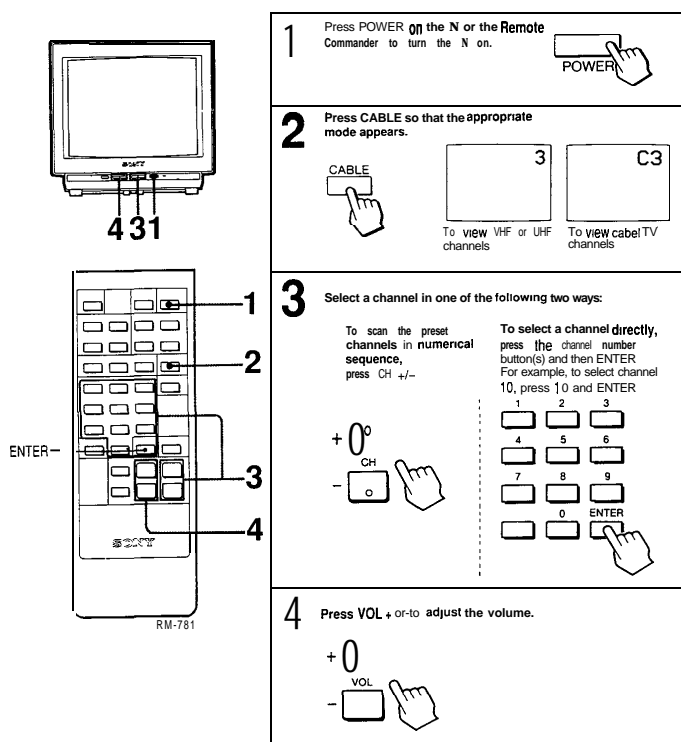
Cable TV channel chart

Cable TV systems use letters or numbers to designate channels. To tune in a channel refer to the chart below.

| Number on this TV | 1 | 5 | 6 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|----------------------------|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| Corresponding CATV channel | A-8 | A-7 | A-6 | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 |
| R | S | T | U | V | W | W-1 | W-2 | W-3 | W-4 | W-5 | W-6 | W-7 | W-8 | W-9 | W-10 | W-11 | W-12 | W-13 | W-14 | W-15 |

The designation of the cable TV channels conforms to the EIA/NTA recommendation.

I-3. WATCHING TV PROGRAMS



1 Press **POWER** on the **N** or the Remote Commander to turn the N on.

2 Press **CABLE** so that the appropriate mode appears.

3 Select a channel in one of the following two ways:

To scan the preset channels in numerical sequence, press **CH +/-**.

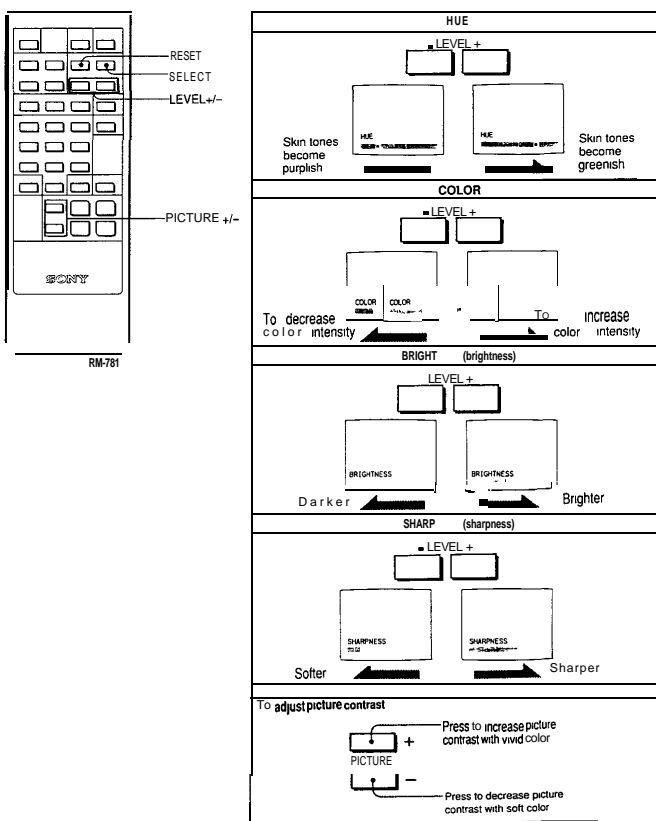
To select a channel directly, press the channel number button(s) and then **ENTER**. For example, to select channel 10, press **10** and **ENTER**.

4 Press **VOL +/-** or to adjust the volume.

Note
To turn off the N
Press **POWER** on the TV or the Remote Commander again.

14. ADJUSTING THE PICTURE

Press **SELECT** repeatedly until the on-screen display of the item to be adjusted appears, then press **LEVEL +/-**.



HUE

LEVEL +

Skin tones become purplish

Skin tones become greenish

COLOR

LEVEL +

To decrease color intensity

To increase color intensity

BRIGHT (brightness)

LEVEL +

Darker

Brighter

SHARP (sharpness)

LEVEL +

Softer

Sharper

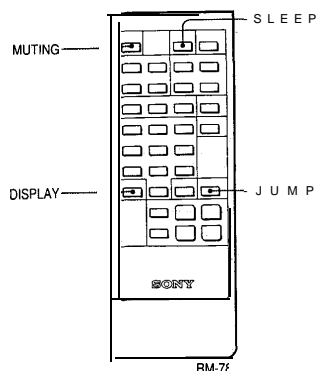
To adjust picture contrast

Press to increase picture contrast with vivid color

Press to decrease picture contrast with soft color

To clear the adjustment levels and restore the factory preset levels at once press **RESET**.

I-5. ENJOYING THE CONVENIENT FEATURES



Muting the sound

Press **MUTING**.
The "MUTING" indication will appear on the screen.
To restore the sound, press **MUTING** again or **VOL +**.

Keeping the channel displayed

Press **DISPLAY**.
To make the channel display disappear, press **DISPLAY** again.

Using the SLEEP timer

Press **SLEEP**.
The TV will be turned off automatically after about one hour.
The green "SLEEP ON" indication will appear on the screen for a few seconds when **SLEEP** is pressed and the red "SLEEP" indication will appear one minute before the TV is turned off.
To cancel the SLEEP timer, press **SLEEP** again, or turn off the TV. The "SLEEP OFF" indication will appear when **SLEEP** is pressed again.

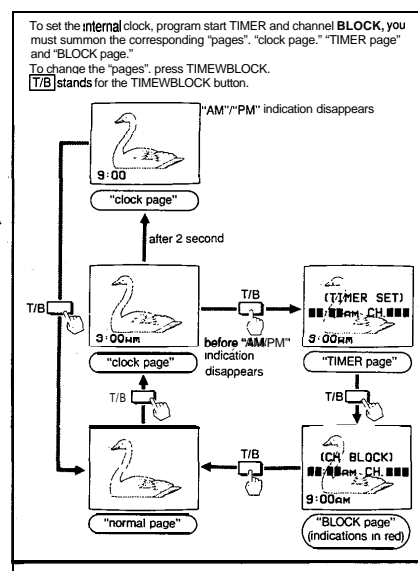
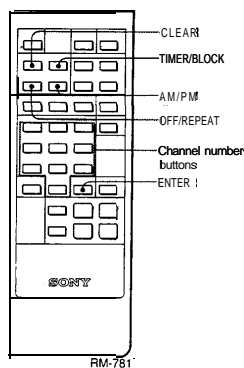
Switching quickly between two channels

Press **JUMP**.
Each time **JUMP** is pressed, the channel which appeared on the screen directly before is recalled. This button enables you to keep track of two programs alternately.

I-6. TIMER/BLOCK

| | |
|----------------------------|--|
| Internal clock | Once the internal clock is set, the current time will appear on the screen. It is necessary to set the clock correctly to activate the program start TIMER and channel BLOCK . |
| Program start TIMER | Makes a program of your choice appear on the screen automatically at the desired time. |
| Channel BLOCK | Blocks a channel from appearing on the screen for 12 hours. Use channel BLOCK to prevent children from watching undesirable programs. |


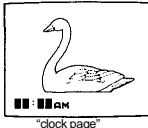
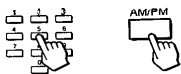


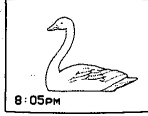
The buttons used for the above functions are located on the Remote Commander.



■ All settings will be erased from the unit's memory if the unit is unplugged, or if a power failure occurs.
The **TIMER** and **BLOCK** will operate only if the clock is set correctly.
If the **TIMER** and **BLOCK** are set for overlapping times on the same channel, the blocked channel will appear on the screen at the time set on the **TIMER**.

How to Set the Internal Clock

Example: To set the clock to 8:05 PM

| | | | | | |
|---|---|---|---|---|--------------|
| 1 | Press TIMER/BLOCK once to change from "normal page" to "clock page." |  | → |  | "clock page" |
| 2 | Press 0, 8, 0, 5 AM/PM (0 necessary). |  | → |  | |
| 3 | If you have performed the operation correctly, press ENTER. The numbers will "wink" to indicate that the clock has been set. (The 0 in front will disappear.) |  | → |  | |

If you have made a **mistake**, press CLEAR and return to step 2. The "AM/PM" indication will disappear after 2 seconds.

To summon "TIMER page," press TIMER/BLOCK before the "AM"/"PM" indication disappears.

To **return to "normal page,"** press TIMER/BLOCK after the "AM"/"PM" indication has disappeared.


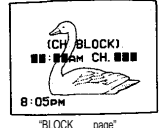
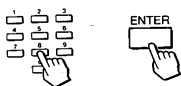
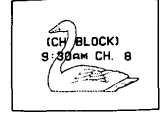
To reset the clock, summon "clock page" and press CLEAR before the "AM"/"PM" indication disappears. Then follow the steps above from step 2.

12:00 AM stands for midnight.
12:00 PM stands for noon.

How to Set the Channel BLOCK

Make **sure** that the clock has been set correctly before Setting the channel BLOCK.

Example: To set the BLOCK for a **program** which begins at 9:30 AM on channel 9

| | | | | | |
|---|---|---|---|--|-----------------------------------|
| 1 | Press TIMER/BLOCK three times to change from "normal page" to "BLOCK page." |  | → |  | "BLOCK page" (indications in red) |
| 2 | Press 0, 9, 3, 0, ENTER (0 necessary). Numbers will "wink" to indicate that the time has been Set. Press 8, ENTER (0 not necessary). Numbers will "wink" to indicate that the channel has been Set. |  | → |  | |

The BLOCK has now been set.

If you have made a **mistake**, press CLEAR and return to step 2.

At the preset time, the picture of the selected channel will be blocked from view and the sound will be muted. A red "BLOCKED" indication will appear on the screen while the channel is blocked.

Normal reception will be resumed after 12 hours.

To return to normal reception while the channel is blocked, recall "BLOCK page" and press CLEAR.


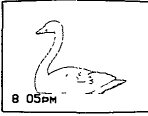


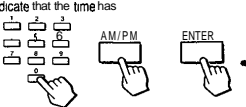
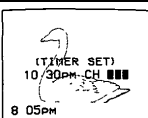
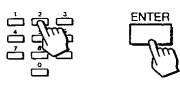
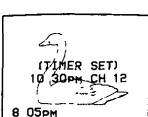
The BLOCK setting blocks a specified channel for the same 12-hour period everyday.

To clear BLOCK setting, summon "BLOCK page" and press CLEAR.

To reset, clear the setting and follow the steps above from step 2.

Make sure that the clock has been set correctly **before** setting the program start **TIMER**.

Example: To set the **TIMER** for a program **which** begins at **10:30 PM** on channel **12**

| | | | | |
|----------|--|---|---|---|
| 1 | Press TIMER/BLOCK once to change from "normal page" to "clock page." |  | → |  |
| 2 | Press TIMER/BLOCK before the "AM"/"PM" indication disappears and summon "TIMER page" |  | → |  |
| 3 | Press 1,0,3,0, AM/PM, ENTER Numbers will "wink" to indicate that the time has been set |  | → |  |
| 4 | Press 1, 2, ENTER (0 not necessary) Numbers will "wink" to indicate that the channel has been set |  | → |  |

The **TIMER** lamp will light up to indicate that the **TIMER** has been set

If you **have made a mistake**, press **CLEAR** and return to step 3

A, the **preset time**, the selected channel will appear on the screen and the **TIMER** lamp will go out. The **TIMER** will operate whether you are watching a TV Program or a VCR playback, or even if you have turned off the TV

If no button is pressed within 2 hours after the preset time, an "OFF" indication will appear on the screen for 1 minute. If a button is still no, touched during the 1 minute, the TV will turn off automatically as a safety precaution

me **TIMER** operates only once, but the time and the channel will remain in the unit's memory

If you want to preset the **same** channel at the **same** time for a future date, press **OFF/REPEAT**. The **TIMER** lamp will light up to indicate that the **TIMER** has been reactivated

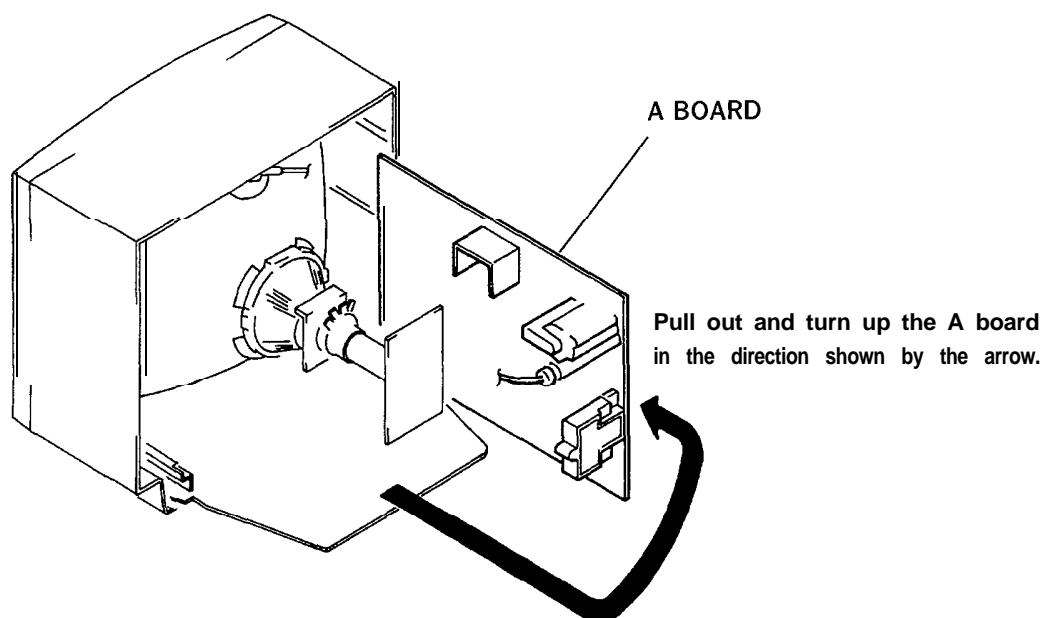
If you want to **deactivate** the **TIMER**, press **OFF/REPEAT** again so that the **TIMER** lamp goes out. It is no, necessary to summon "TIMER page" to use the **OFF/REPEAT** button. Furthermore, this button is effective even if the TV has been turned off

To **clear** the **TIMER** setting, summon "TIMER page" and press **CLEAR**

To **reset**, clear the setting and follow the steps from step 3

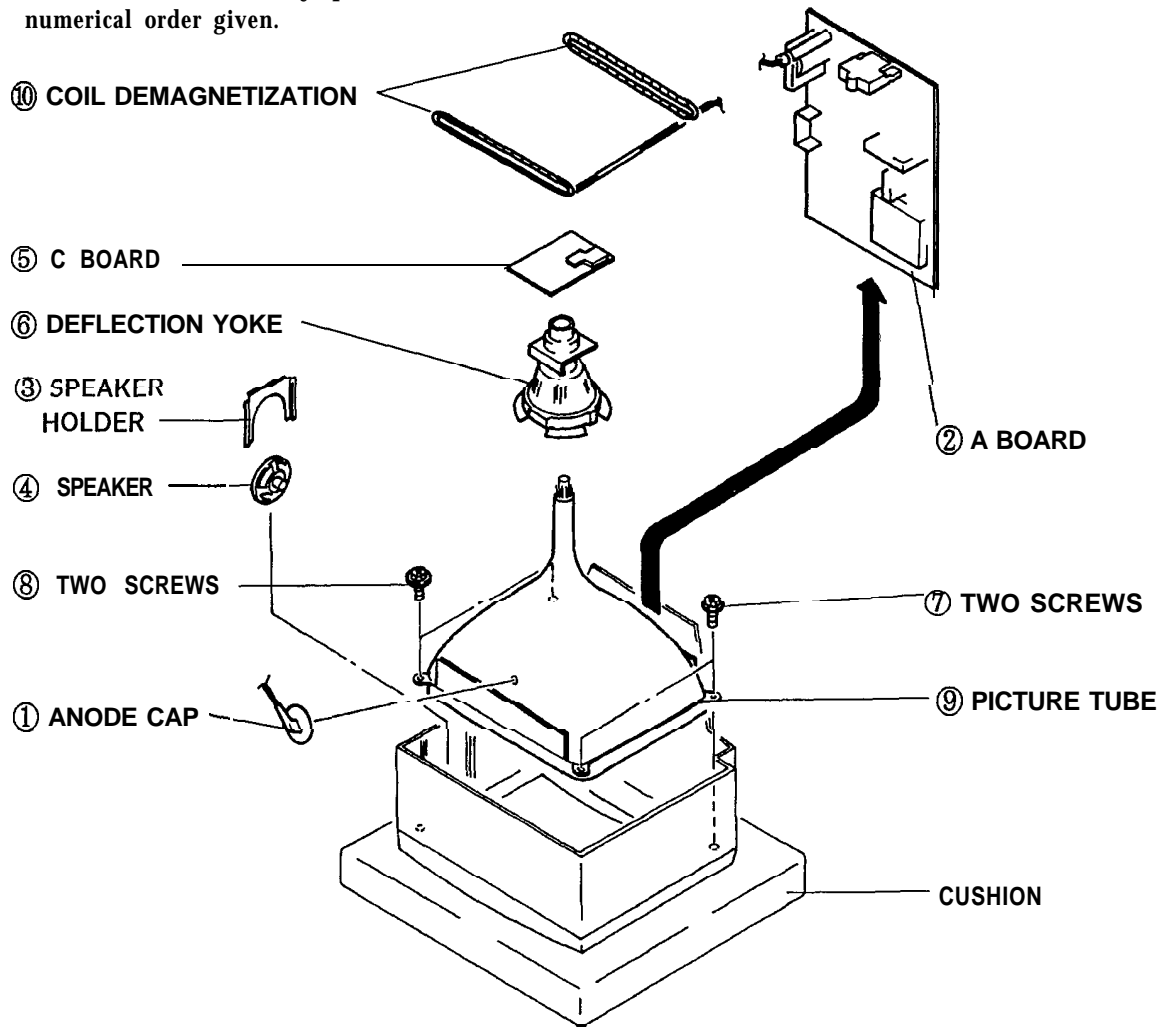
SECTION 2 DISASSEMBLY

2-1. SERVICE POSITION

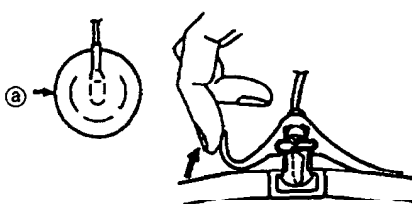


2-2. PICTURE TUBE REMOVAL

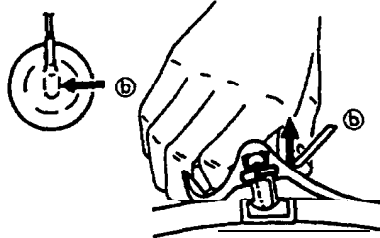
Note : Follow the disassembly procedure in the numerical order given.



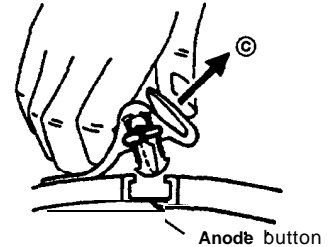
REMOVAL OF ANODE-CAP REMOVING PROCEDURES



@Turn up one side of the rubber cap in the direction indicated by the arrow (a).



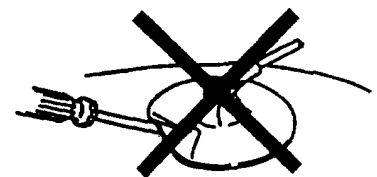
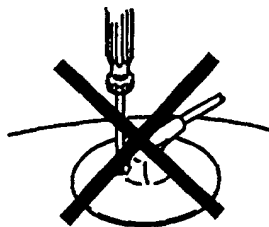
@Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow (b).



@When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow (c).

HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.



SECTION 3 SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switch should be set as follows unless otherwise noted :

PICTURE control MAXIMUM
BRIGHTNESS control MAXIMUM

Perform the adjustments in order as follows :

1. Beam Landing
2. Convergence
3. Focus
4. Sub Brightness
5. White Balance

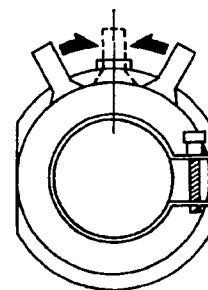
Note : Test Equipment Required.

1. Color-bar/Pattern Generator
2. Degausser

3-1. BEAM LANDING

Preparation.

- Feed in the white pattern.
 - Before starting, degauss the entire screen.
1. Loosen deflection yoke screw.
 2. Adjust purity control as shown in Fig.3-1.
 3. Slide deflection yoke as far forward as it will go.
 4. Turn the raster signal of the pattern generator to red.
 5. Adjust purity control to center vertical red band as shown in Fig.3-2.
 6. Slide deflection yoke back for a uniform red screen.
 7. Check green and blue rasters for uniformity by performing the same way as steps 4, 5 and 6.
 8. Tighten the deflection yoke screw.
 9. Check if mislanding appears at corners a-d as shown in Fig. 3-3. If mislanding is observed, correct it as shown in Fig. 3-3.
 10. Confirm that beam landing is correct when the receiver is faced in all directions.



PURITY CONTROL
Fig. 3-1.

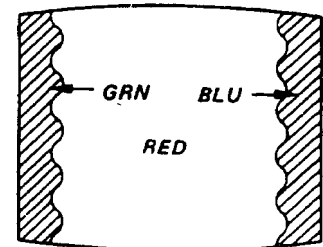


Fig. 3-2.

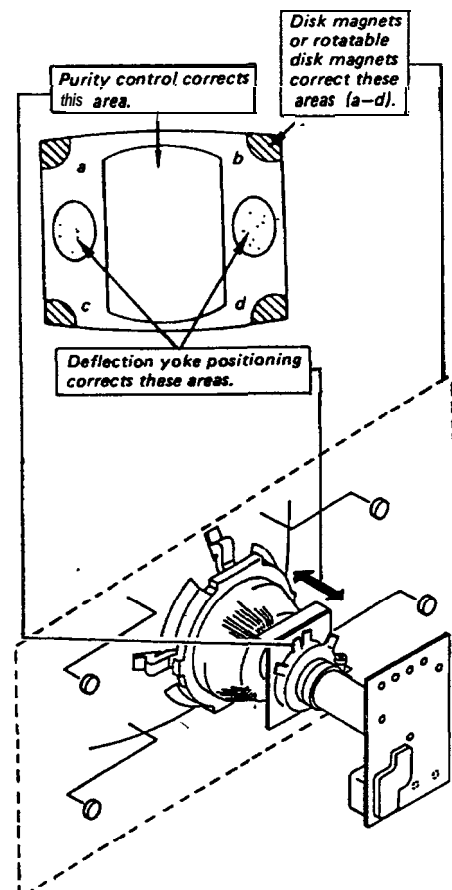
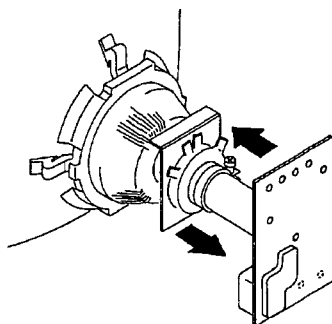


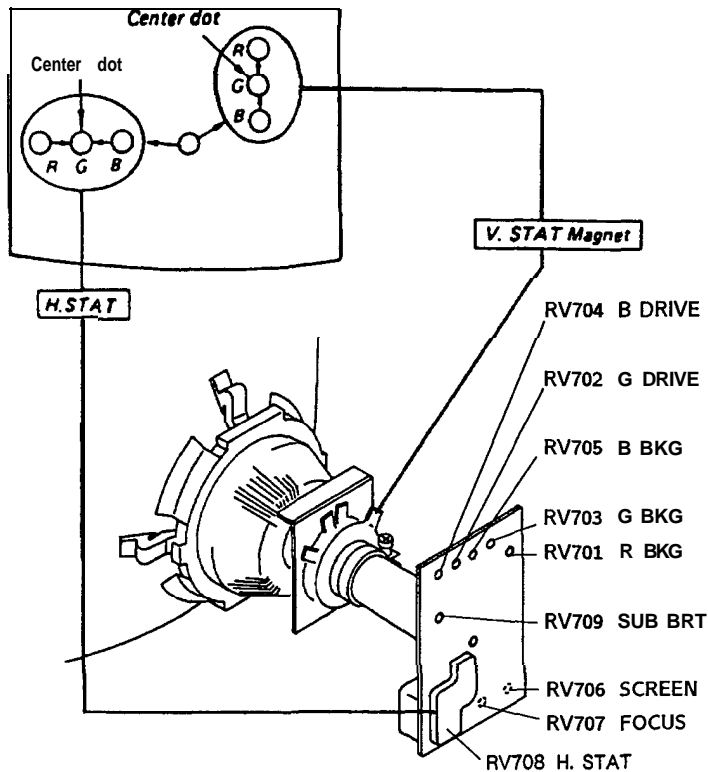
Fig. 3-3.

3-2. CONVERGENCE

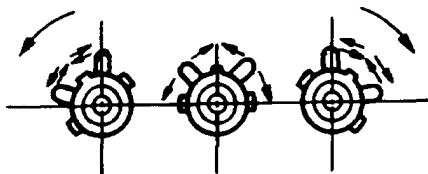
Preparation :

- Before starting, perform FOCUS, H. SIZE and V. SIZE adjustments.
- Set BRIGHTNESS control to fully counterclockwise.
- Feed in the dot pattern.

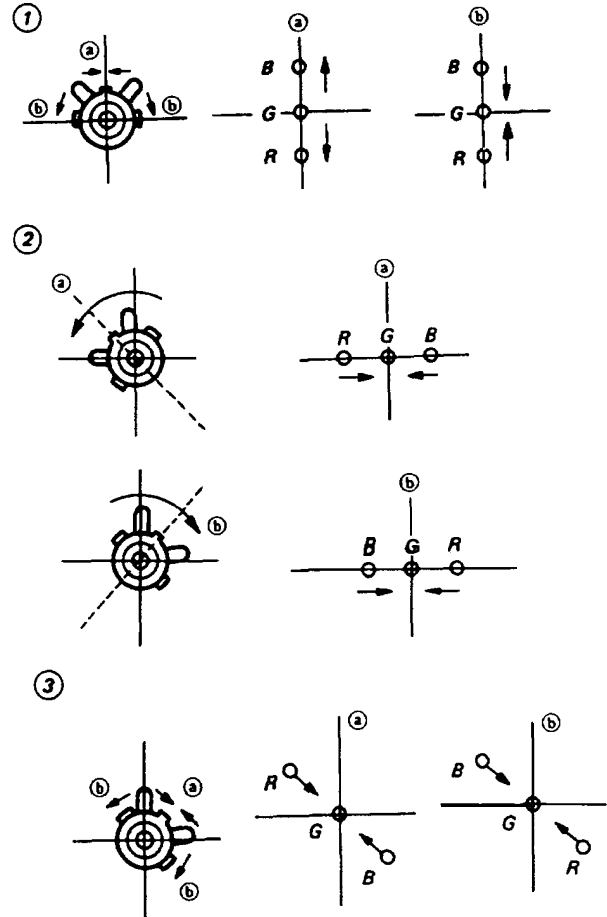
(1) Horizontal and Vertical Static Convergence



1. Adjust H. STAT VR to coincide red, green and blue dots on the center of screen.
(Horizontal movement)
 2. Adjust V. STAT magnet to coincide red, green and blue dots on the center of screen.
(Vertical movement)
 3. If the red, green and blue dots do not coincide on the center of screen with H. STAT VR, perform horizontal convergence adjustment using H. STAT VR and V. STAT magnet as shown below.
(In this case, H. STAT VR and V. STAT magnet effect each other.)
- Tilt the V. STAT magnet and adjust static convergence to open or close the V. STAT magnet.



4. When the V. STAT magnet is moved in the direction of arrow (a) and (b), Red, Green and Blue dots move as shown below.

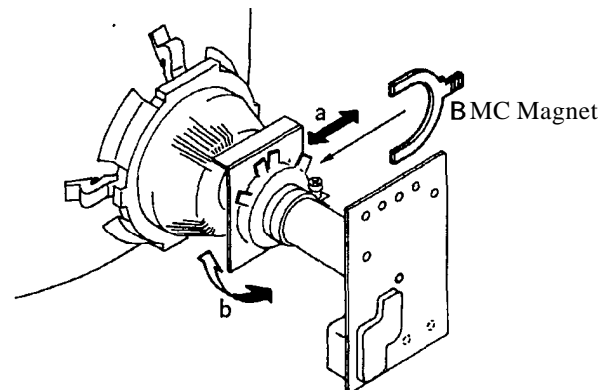


If blue dot dose not coincide with red and green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H. static convergence.

Rotate BMC magnet (b) to correct insufficient V. static convergence.

In either case, repeat Beam Landing Adjustment.

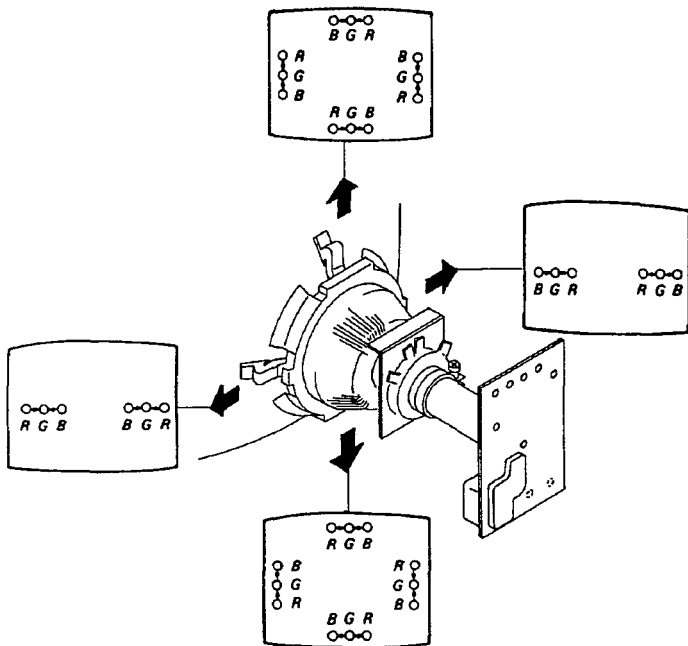


(2) Dynamic Convergence Adjustment

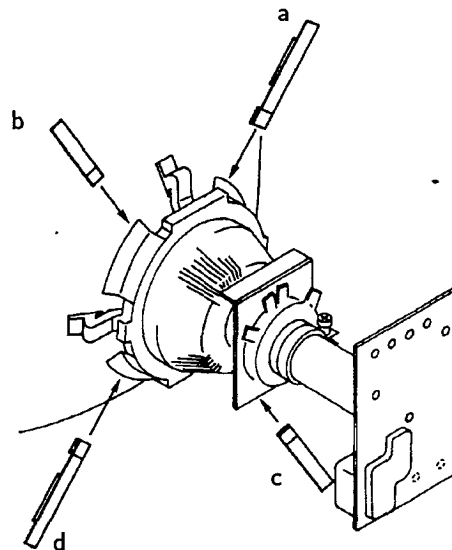
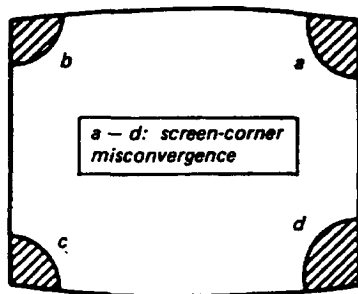
Preparation :

- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.

 1. Loosen deflection yoke screw.
 2. Remove deflection yoke spacers.
 3. Move the deflection yoke for best convergence as shown below.
 4. Tighten the deflection yoke screw.
 5. Install the deflection yoke spacers.



(3) Screen-corner Convergence



Permalloy

3-3. FOCUS (G4)(RV707)

Adjust FOCUS control for a best picture.

3-4. SUB BRT (RV709)

1. Feed in a cross-hatch pattern.
2. Set PICTURE and BRIGHTNESS to minimum.
3. Turn RV709 (SUB BRT) slowly to obtain a faintly visible cross-hatch.

3-5. WHITE BALANCE

Feed in the cross-hatch pattern.

1. Set BRIGHTNESS and PICTURE controls to minimum.
2. Turn RV704 (B.DRIVE) and RV702 (G. DRIVE) fully counterclockwise.
3. Set RV701 (R.BKG), RV703 (G.BKG), RV705 (B.BKG) and RV709 (SUB BRT) to mechanical center.
4. Turn RV706(SCREEN) slowly to obtain a faintly visible cross-hatch. Note the color that first becomes visible by turning RV708. Do not turn a BKG control for this color.
5. Adjust the other two BKG controls for best white balance (neutral gray) of the faint cross-hatch.
6. Set BRIGHTNESS and PICTURE controls to maximum. Observe the screen and adjust the DRIVE controls for best white balance.
7. Repeat Steps 1 through 6 several times.

SECTION 4

SAFETY RELATED ADJUSTMENT

☑ R568 CONFIRMATION METHOD (HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

When replacing the following components (marked with ☑ on the schematic diagram) , always perform the adjustment as follows :

IC301, D502, C514, C517, C518, C525, C530, C561, R512, R521, R522, R555, R556, R567, R568, T503, DY

(1) Preparation before confirmation

1. Turn the POWER switch ON, and receive entirely dot signals and set the PICTURE and BRIGHTNESS controls to minimum.
2. Confirm that voltage of T85 is more than 25.0 ± 2.5 V DC when set is operating normally with 120 V AC supply.

(2) Hold-down operation confirmation

1. Turn the POWER switch ON, and receive entirely dot signals and set the PICTURE and BRIGHTNESS controls to minimum.
2. Apply DC voltage to the check terminal of TP85 via 1T40 from the DC stabilized power source. Confirm that the minimum voltage is less than *30.7V whereby the raster disappears during of hold-down circuit.

NOTE : when the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

(3) Hold-down readjustment

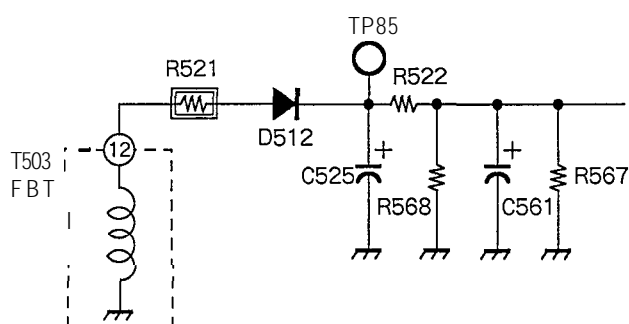
When step(2) is not satisfied, readjustment should be performed by altering the resistance value of R568 (a component marked with 6).

(4) Confirmation of hold-down erroneous operation

1. Turn the POWER switch ON, and receive dot signals and set the PICTURE and BRIGHTNESS controls to minimum.
2. Confirm that the hold-down circuit does not operate by turning the POWER switch ON and OFF repeatedly several times.

NOTE : If the hold-down circuit starts operating in the above case, switch OFF the POWER of the set immediately.

3. Turn the POWER switch ON, and receive dot signals and entirely white signals, and set the PICTURE and BRIGHTNESS controls to maximum.



4. Confirm that the hold-down circuit does not operate by performing switchover of the channels of the dot signals and entirely white signals several times.

NOTE : If the hold-down circuit starts operating in the above case, switch OFF the POWER of the set immediately.

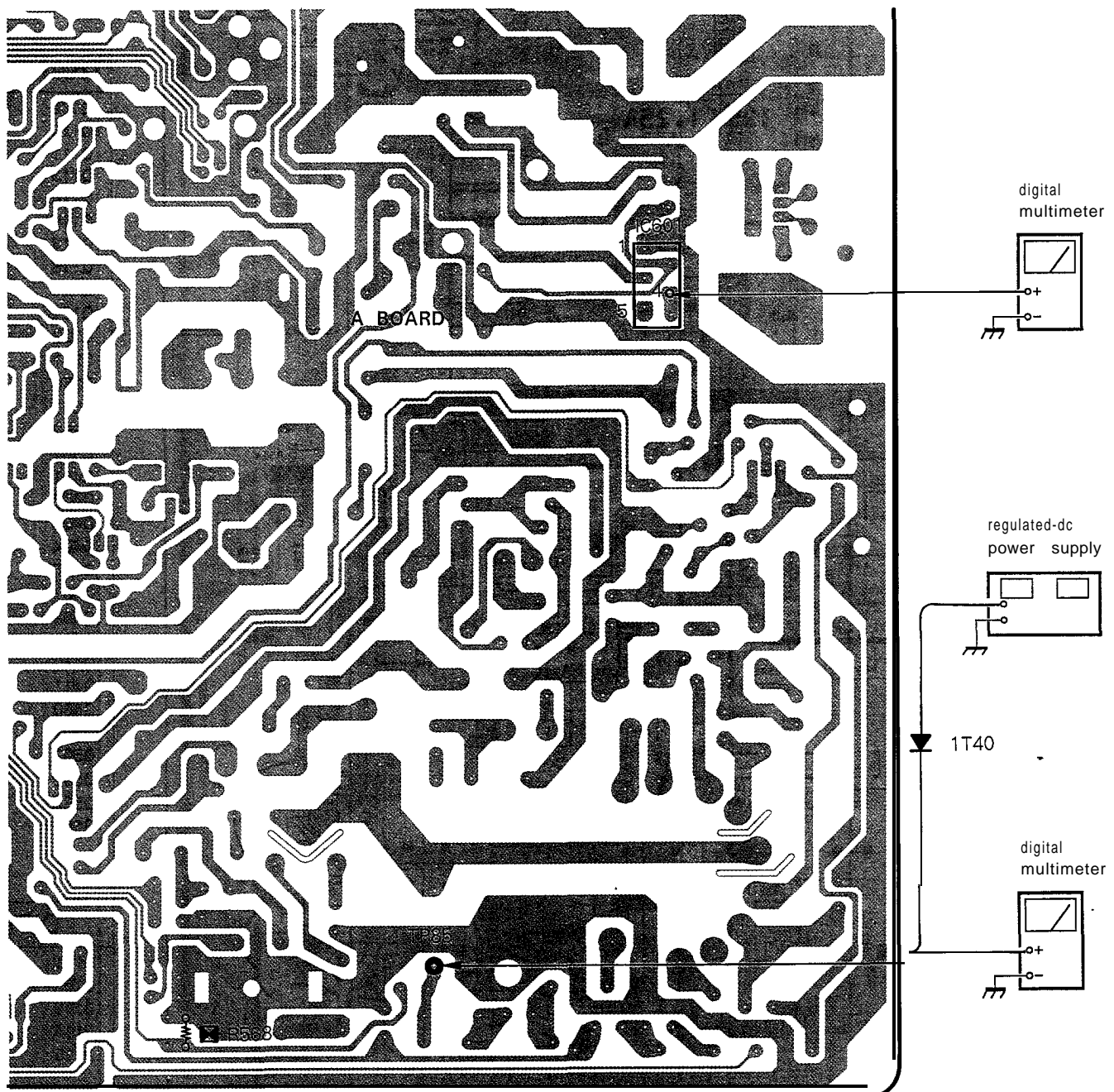
5. If the above-mentioned steps 1 to 4 are not satisfied reconfirm steps (2) to (4) by altering the R568 smaller resistance value (a component marked with \boxtimes).

*Use a digital multimeter whose input impedance is over $100M\Omega$ when confirming the voltage of TP85.

B+ VOLTAGE CONFIRMATION

The following adjustments should always be performed when replacing IC601.

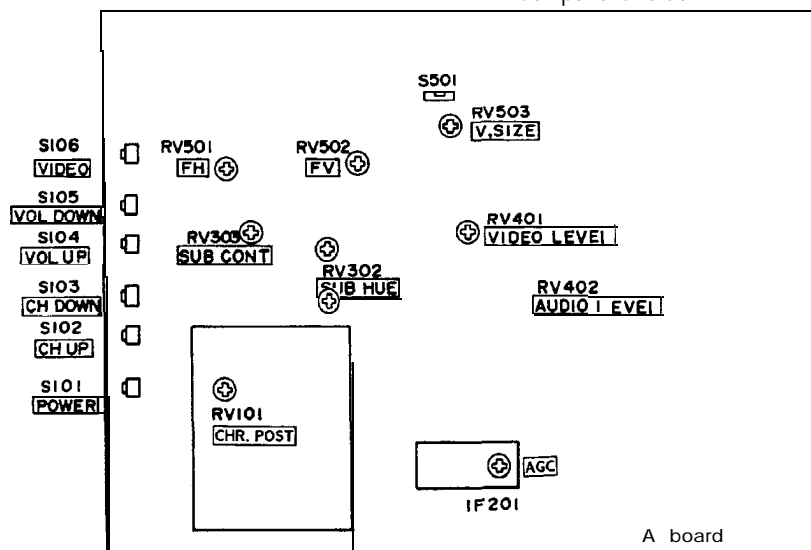
1. Supply $130 \pm 2V$ AC to with variable auto-transformer.
2. Receive Monoscope signals.
3. Set the PICTURE and BRIGHTNESS controls in to Initial Reset.
4. Confirm the voltage of pin ④ of IC601 is less than 137.20V DC.
5. If step 4 is not satisfied, replace IC601 and repeat above steps.



SECTION 5 ELECTRICAL ADJUSTMENTS

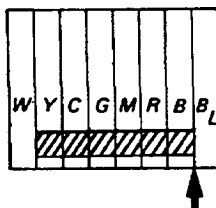
5-I. A BOARD ASDJUSTMENT

• Component Side •



BAR POSITION ADJUSTMENT (RV101)

1. Receive a color-bar signal.
2. Set the PICTURE button to maximum.
3. Adjust RV101 to the point where the arrow indicate.

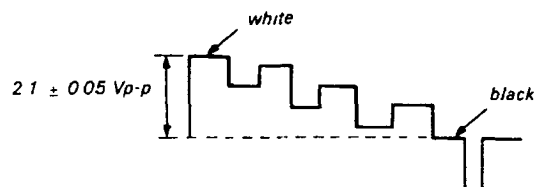


RF AGC ADJUSTMENT (IF201)

1. Receive an off-air signal.
2. Adjust AGC VR (AGC VR of IF201) so that snow noise and cross-modulation just disappear from the picture.

SUB CONTRAST ADJUSTMENT (RV303)

1. Receive a color-bar signal.
PICTURE MAX
BRT CENTER
COLOR MIN
2. Connect circuit between Base of Q354 and 9.3V line with a jumper wire.
3. Draw A-8 - C-3 connector (C Board).
4. Connect an oscilloscope to the pin ④ of A-8 connector (blue out).
5. Adjust RV303 (SUB CONT) so that voltage is $2.1 \pm 0.05V_{p-p}$.



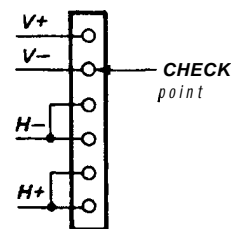
H.FREQ ADJUSTMENT (RV501)

1. Receive an off-air signal.
2. Connect circuit between pin ④⑧ of IC301 (H IN) and pin ③⑥ of IC301 (VCC2) with a jumper wire.
3. Connect the frequency counter across Base of Q 550 and ground.
4. Adjust RV501 for $15,734kHz \pm 50Hz$ on the frequency counter.
5. Disconnect a jumper wire from IC301.

V.FREQ ADJUSTMENT (RV502)

1. Receive an off-air signal.
2. Connect circuit between pin ④⑦ of IC301 (V IN) and pin ③⑥ of IC301 (VCC2) with a jumper wire.
3. Connect the frequency counter across DY-1 connector (V.DY ⑥) and ground.
4. Adjust RV502 for $55.0 \pm 0.3Hz$ on the frequency counter.
5. Disconnect a jumper wire from IC301.

DY-1 connector



H.CENT ADJUSTMENT (A-13)

1. Receive a cross-hatch signal.
2. Set PICTURE and BRT to normal.
3. Adjust H.CENT (H.CENT TAP=A-13) for best picture.

I -

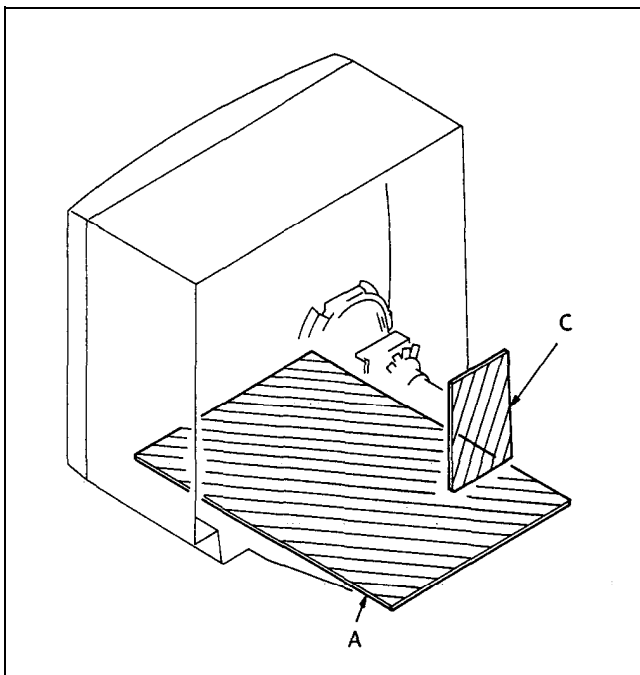
1. Receive a cross-hatch signal.
2. Set PICTURE and BRT to normal.
3. Adjust V.CENT (S501) for best picture.

MEMO

Handwriting practice lines consisting of 20 horizontal dotted lines.

SECTION 6 DIAGRAMS

6-1. CIRCUIT BOARD LOCATION



Note :

- All capacitors are in μF unless otherwise noted. pF : $\mu \mu F$. 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms.
- Δ : internal component.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation, adjustment for repair.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm
Rating electrical power : $\frac{1}{4}W$

- All variable end adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by and repeat the adjustment until the specified value is achieved. (Refer to R381 adjustment on Page 15, 16.)
- When replacing the part in below table, be sure to perform the related adjustment.

| Part replaced () | Adjustment () |
|---|---------------------|
| C514, C517, C518, C525, C530, C561, D502, IC301, R512, R521, R522, R555, R556, R567, R568, T503 (FBT), DY | R568 (HOLD DOWN) |

• Voltages are dc with respect to ground unless otherwise noted.

• All voltages are in V.

• Reading are taken with a color-bar signal input.

• Reading are taken with a NTSC 358 color-bar signal input

• Voltage variations may be noted due to normal production tolerances

• : B+ bus.

• : B- bus

• : signal path.

• Voltage in audio circuit are measured receiving the FM broadcast.

Reference information

| | | |
|-----------|---------|-------------------------|
| RESISTOR | : RN | METAL FILM |
| | : RC | SOLID |
| | : FPRD | NONFLAMMABLE CARBON |
| | : FUSE | NONFLAMMABLE FUSIBLE |
| | : RS | NONFLAMMABLE WIREWOUND |
| | : RB | NONFLAMMABLE CEMENT |
| COIL | : LF-8L | MICRO INDUCTOR |
| CAPACITOR | : TA | TANTALUM |
| | : PS | STYROL |
| | : PP | POLYPROPYLENE |
| | : PT | MYLAR |
| | : MPS | METALIZED POLYESTER |
| | : MPP | METALIZED POLYPROPYLENE |
| | : ALB | BIPOLAR |
| | : ALT | HIGH TEMPERATURE |
| | : ALR | HIGH RIPPLE |

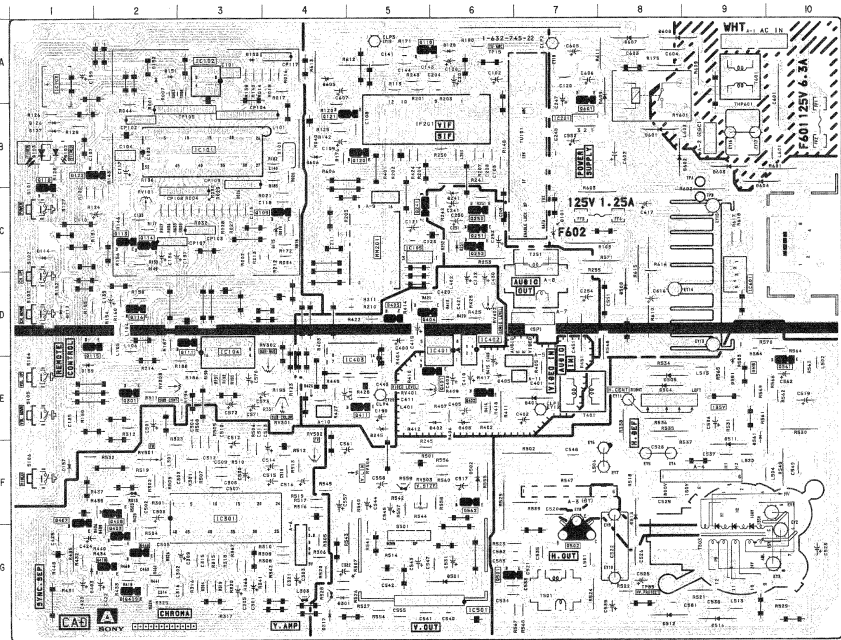
Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et par une marque sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

A [TUNER, VIF, SIF, PLL, CONTROLLER, MEMORY,
COMB FILTER, Y, CHROMA, JUNGLE,
D/A CONVERTER, W/V OUT, HV PROTECT,
POWER SUPPLY, CUSTOMER CONTROL]
C [R, G, B OUT]

6-2. PRINTED WIRING BOARD

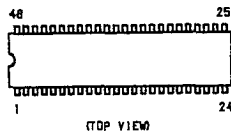
-A Board-



| IC | TRANSISTOR | |
|-------------------|------------|------|
| | TP15 | TP85 |
| IC101 | B-3 | D127 |
| IC102 | A-3 | D128 |
| IC103 | A-1 | D129 |
| IC104 | D-3 | D130 |
| IC105 | C-5 | D131 |
| IC201 | B-7 | D132 |
| IC301 | F-3 | D133 |
| IC401 | D-8 | D134 |
| IC501 | G-6 | D135 |
| IC601 | D-9 | D136 |
| VARIABLE RESISTOR | | TP |
| | | |
| Q109 | C-4 | D137 |
| Q110 | A-5 | D138 |
| Q111 | D-3 | D139 |
| Q112 | C-2 | D140 |
| Q113 | C-2 | D141 |
| Q114 | C-2 | D142 |
| Q115 | D-1 | D143 |
| Q116 | D-2 | D144 |
| Q117 | B-1 | D145 |
| Q118 | B-1 | D146 |
| Q119 | B-1 | D147 |
| Q120 | B-1 | D148 |
| Q121 | B-4 | D149 |
| Q122 | B-1 | D150 |
| Q123 | C-5 | D151 |
| Q124 | C-5 | D152 |
| Q125 | C-6 | D153 |
| Q126 | C-6 | D154 |
| Q127 | C-6 | D155 |
| Q128 | C-6 | D156 |
| Q129 | C-6 | D157 |
| Q130 | C-6 | D158 |
| Q131 | C-6 | D159 |
| Q132 | C-6 | D160 |
| Q133 | C-6 | D161 |
| Q134 | C-6 | D162 |
| Q135 | C-6 | D163 |
| Q136 | C-6 | D164 |
| Q137 | C-6 | D165 |
| Q138 | C-6 | D166 |
| Q139 | C-6 | D167 |
| Q140 | C-6 | D168 |
| Q141 | C-6 | D169 |
| Q142 | C-6 | D170 |
| Q143 | C-6 | D171 |
| Q144 | C-6 | D172 |
| Q145 | C-6 | D173 |
| Q146 | C-6 | D174 |
| Q147 | C-6 | D175 |
| Q148 | C-6 | D176 |
| Q149 | C-6 | D177 |
| Q150 | C-6 | D178 |
| Q151 | C-6 | D179 |
| Q152 | C-6 | D180 |
| Q153 | C-6 | D181 |
| Q154 | C-6 | D182 |
| Q155 | C-6 | D183 |
| Q156 | C-6 | D184 |
| Q157 | C-6 | D185 |
| Q158 | C-6 | D186 |
| Q159 | C-6 | D187 |
| Q160 | C-6 | D188 |
| Q161 | C-6 | D189 |
| Q162 | C-6 | D190 |
| Q163 | C-6 | D191 |
| Q164 | C-6 | D192 |
| Q165 | C-6 | D193 |
| Q166 | C-6 | D194 |
| Q167 | C-6 | D195 |
| Q168 | C-6 | D196 |
| Q169 | C-6 | D197 |
| Q170 | C-6 | D198 |
| Q171 | C-6 | D199 |
| Q172 | C-6 | D200 |
| Q173 | C-6 | D201 |
| Q174 | C-6 | D202 |
| Q175 | C-6 | D203 |
| Q176 | C-6 | D204 |
| Q177 | C-6 | D205 |
| Q178 | C-6 | D206 |
| Q179 | C-6 | D207 |
| Q180 | C-6 | D208 |
| Q181 | C-6 | D209 |
| Q182 | C-6 | D210 |
| Q183 | C-6 | D211 |
| Q184 | C-6 | D212 |
| Q185 | C-6 | D213 |
| Q186 | C-6 | D214 |
| Q187 | C-6 | D215 |
| Q188 | C-6 | D216 |
| Q189 | C-6 | D217 |
| Q190 | C-6 | D218 |
| Q191 | C-6 | D219 |
| Q192 | C-6 | D220 |
| Q193 | C-6 | D221 |
| Q194 | C-6 | D222 |
| Q195 | C-6 | D223 |
| Q196 | C-6 | D224 |
| Q197 | C-6 | D225 |
| Q198 | C-6 | D226 |
| Q199 | C-6 | D227 |
| Q200 | C-6 | D228 |
| Q201 | C-6 | D229 |
| Q202 | C-6 | D230 |
| Q203 | C-6 | D231 |
| Q204 | C-6 | D232 |
| Q205 | C-6 | D233 |
| Q206 | C-6 | D234 |
| Q207 | C-6 | D235 |
| Q208 | C-6 | D236 |
| Q209 | C-6 | D237 |
| Q210 | C-6 | D238 |
| Q211 | C-6 | D239 |
| Q212 | C-6 | D240 |
| Q213 | C-6 | D241 |
| Q214 | C-6 | D242 |
| Q215 | C-6 | D243 |
| Q216 | C-6 | D244 |
| Q217 | C-6 | D245 |
| Q218 | C-6 | D246 |
| Q219 | C-6 | D247 |
| Q220 | C-6 | D248 |
| Q221 | C-6 | D249 |
| Q222 | C-6 | D250 |
| Q223 | C-6 | D251 |
| Q224 | C-6 | D252 |
| Q225 | C-6 | D253 |
| Q226 | C-6 | D254 |
| Q227 | C-6 | D255 |
| Q228 | C-6 | D256 |
| Q229 | C-6 | D257 |
| Q230 | C-6 | D258 |
| Q231 | C-6 | D259 |
| Q232 | C-6 | D260 |
| Q233 | C-6 | D261 |
| Q234 | C-6 | D262 |
| Q235 | C-6 | D263 |
| Q236 | C-6 | D264 |
| Q237 | C-6 | D265 |
| Q238 | C-6 | D266 |
| Q239 | C-6 | D267 |
| Q240 | C-6 | D268 |
| Q241 | C-6 | D269 |
| Q242 | C-6 | D270 |
| Q243 | C-6 | D271 |
| Q244 | C-6 | D272 |
| Q245 | C-6 | D273 |
| Q246 | C-6 | D274 |
| Q247 | C-6 | D275 |
| Q248 | C-6 | D276 |
| Q249 | C-6 | D277 |
| Q250 | C-6 | D278 |
| Q251 | C-6 | D279 |
| Q252 | C-6 | D280 |
| Q253 | C-6 | D281 |
| Q254 | C-6 | D282 |
| Q255 | C-6 | D283 |
| Q256 | C-6 | D284 |
| Q257 | C-6 | D285 |
| Q258 | C-6 | D286 |
| Q259 | C-6 | D287 |
| Q260 | C-6 | D288 |
| Q261 | C-6 | D289 |
| Q262 | C-6 | D290 |
| Q263 | C-6 | D291 |
| Q264 | C-6 | D292 |
| Q265 | C-6 | D293 |
| Q266 | C-6 | D294 |
| Q267 | C-6 | D295 |
| Q268 | C-6 | D296 |
| Q269 | C-6 | D297 |
| Q270 | C-6 | D298 |
| Q271 | C-6 | D299 |
| Q272 | C-6 | D300 |
| Q273 | C-6 | D301 |
| Q274 | C-6 | D302 |
| Q275 | C-6 | D303 |
| Q276 | C-6 | D304 |
| Q277 | C-6 | D305 |
| Q278 | C-6 | D306 |
| Q279 | C-6 | D307 |
| Q280 | C-6 | D308 |
| Q281 | C-6 | D309 |
| Q282 | C-6 | D310 |
| Q283 | C-6 | D311 |
| Q284 | C-6 | D312 |
| Q285 | C-6 | D313 |
| Q286 | C-6 | D314 |
| Q287 | C-6 | D315 |
| Q288 | C-6 | D316 |
| Q289 | C-6 | D317 |
| Q290 | C-6 | D318 |
| Q291 | C-6 | D319 |
| Q292 | C-6 | D320 |
| Q293 | C-6 | D321 |
| Q294 | C-6 | D322 |
| Q295 | C-6 | D323 |
| Q296 | C-6 | D324 |
| Q297 | C-6 | D325 |
| Q298 | C-6 | D326 |
| Q299 | C-6 | D327 |
| Q300 | C-6 | D328 |
| Q301 | C-6 | D329 |
| Q302 | C-6 | D330 |
| Q303 | C-6 | D331 |
| Q304 | C-6 | D332 |
| Q305 | C-6 | D333 |
| Q306 | C-6 | D334 |
| Q307 | C-6 | D335 |
| Q308 | C-6 | D336 |
| Q309 | C-6 | D337 |
| Q310 | C-6 | D338 |
| Q311 | C-6 | D339 |
| Q312 | C-6 | D340 |
| Q313 | C-6 | D341 |
| Q314 | C-6 | D342 |
| Q315 | C-6 | D343 |
| Q316 | C-6 | D344 |
| Q317 | C-6 | D345 |
| Q318 | C-6 | D346 |
| Q319 | C-6 | D347 |
| Q320 | C-6 | D348 |
| Q321 | C-6 | D349 |
| Q322 | C-6 | D350 |
| Q323 | C-6 | D351 |
| Q324 | C-6 | D352 |
| Q325 | C-6 | D353 |
| Q326 | C-6 | D354 |
| Q327 | C-6 | D355 |
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| Q334 | C-6 | D362 |
| Q335 | C-6 | D363 |
| Q336 | C-6 | D364 |
| Q337 | C-6 | D365 |
| Q338 | C-6 | D366 |
| Q339 | C-6 | D367 |
| Q340 | C-6 | D368 |
| Q341 | C-6 | D369 |
| Q342 | C-6 | D370 |
| Q343 | C-6 | D371 |
| Q344 | C-6 | D372 |
| Q345 | C-6 | D373 |
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| Q347 | C-6 | D375 |
| Q348 | C-6 | D376 |
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| Q381 | C-6 | D409 |
| Q382 | C-6 | D410 |
| Q383 | C-6 | D411 |
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6-4. SEMICONDUCTORS

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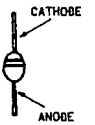


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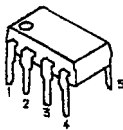


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RD33ES-L3
RD4.3ES-B1
RD5.1 ES-L2
RD5.6ES-B2
RD9.1 ES-B3
WG713A
1SS119

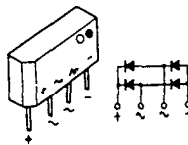
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V19CS



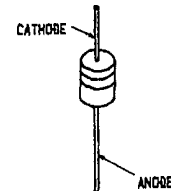
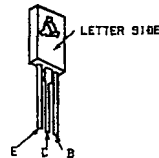
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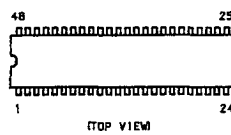
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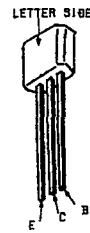
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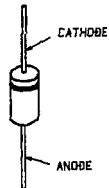
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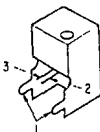
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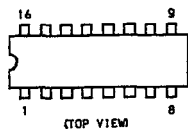
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KEY-COOSV-F



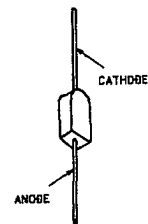
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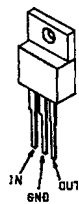
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LM7812CT
M5F78M05L



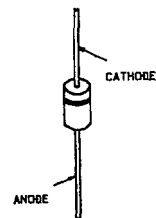
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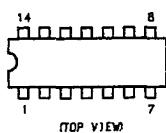
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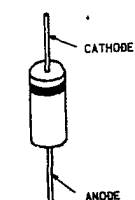
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TVR4J



SECTION 7 EXPLODED VIEW

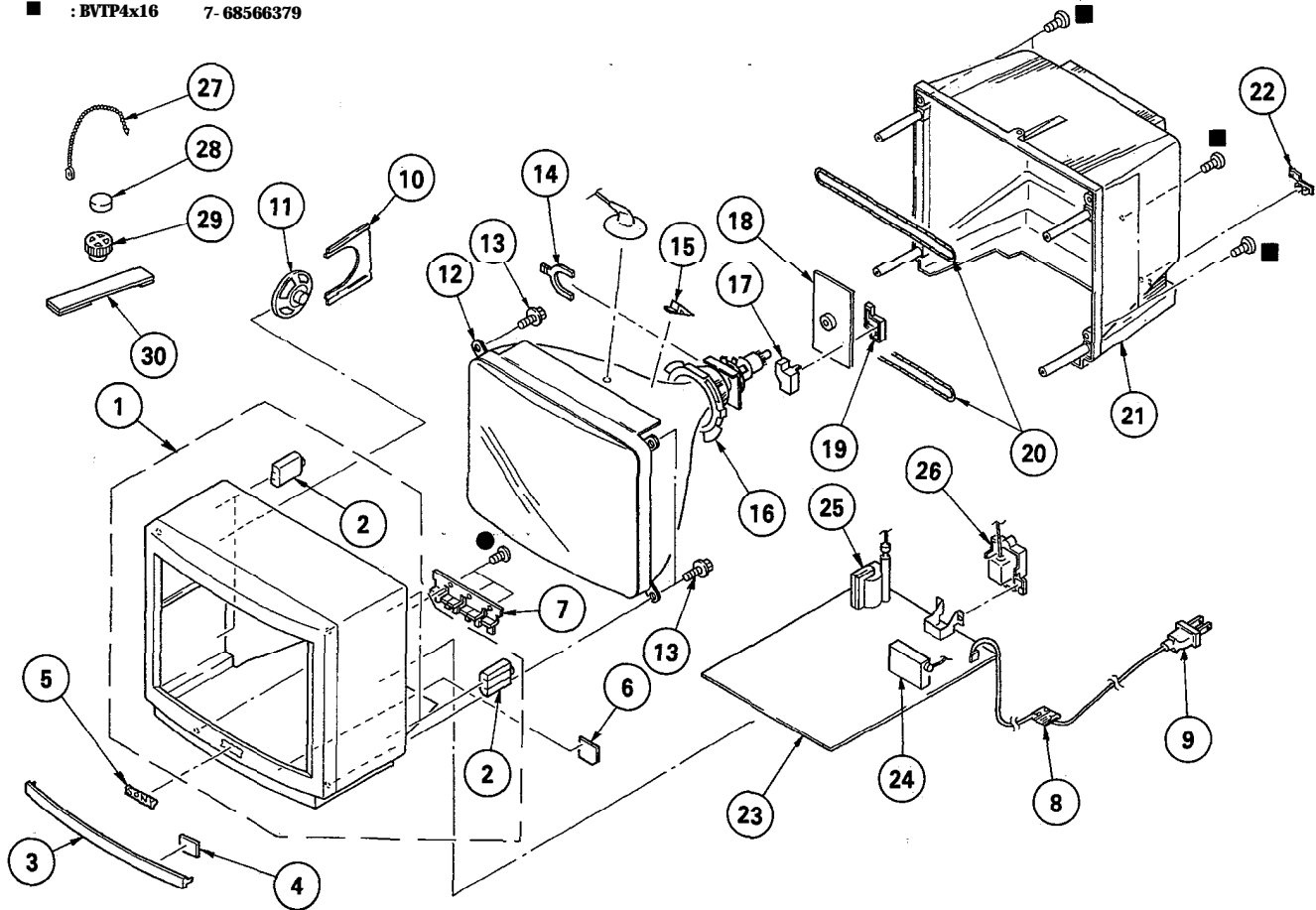
NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- : BVIP3x12 7-685-648-79
- : BVIP4x16 7-68566379



| REF. NO. | PART NO. | DESCRIPTION | REMARK | REF. NO. | PART NO. | DESCRIPTION | REMARK |
|----------|-----------------------|--|--------|----------|-----------------------|-------------------------------------|--------|
| 1 | X-4030-231-1 | CABINET SUB ASSY (WITH BEZEL SUB ASSY) | | 18 | *A-1331-045-A | C BOARD, COMPLETE | |
| 2 | 4-029-195-01 | BOSS (A), ADHESIVE | | 19 | *4-374-913-01 | COVER (REAR LID), CV VOL | |
| 3 | 4-393-158-02 | PANEL, ORNAMENTAL | | 20 | Δ 1-426-146-71 | COIL, DEMAGNETIZATION | |
| 4 | 4-393-151-02 | PLATE, LIGHT GUIDE | | 21 | 4-393-160-01 | COVER, REAR | |
| 5 | 4-393-157-01 | EMBLEM (NO.6), SONY | | 22 | 4-329-127-00 | CLAMP, CORD | |
| 6 | 4-393-152-01 | BARRIER | | 23 | *A-1296-663-A | A BOARD, COMPLETE | |
| 7 | 4-393-156-01 | BUTTON, MULTI | | 24 | Δ 1-465-371-11 | TUNER, BT (BTP-RA401) | |
| 8 | Δ 4-388-328-01 | GROMMET, AC CORD | | 25 | Δ 1-439-483-11 | TRANSFORMER ASSY, FLYBACK (NX-1710) | |
| 9 | Δ 1-559-396-21 | CORD, POWER | | 26 | Δ 1-537-273-11 | TERMINAL ASSY, ANTENNA (USA ONLY) | |
| 10 | *4-393-155-01 | HOLDER, SPEAKER | | 27 | Δ 1-537-367-11 | TERMINAL ASSY, ANTENNA (CND ONLY) | |
| 11 | 1-544-499-11 | SPEAKER | | 28 | 4-308-870-00 | CLIP, LEAD WIRE | |
| 12 | Δ 8-735-555-75 | PICTURE TUBE (A34JBUIOX) | | 29 | 1-452-032-00 | MAGNET, DISK; 10MM ϕ | |
| 13 | 4-365-808-01 | SCREW (5), TAPPING | | 30 | 1-452-094-00 | MAGNET, ROTATABLE DISK; 15MM ϕ | |
| 14 | 1-452-277-00 | MAGNET, BMC | | | X-4308-815-0 | PERMALLOY ASSY. CONVERGENCE | |
| 15 | 3-704-495-01 | SPACER, DY | | | | | |
| 16 | Δ 1-451-234-00 | DEFLECTION Yoke (Y14NDA) | | | | | |
| 17 | *4-374-912-01 | COVER (MAIN), CV VOL | | | | | |

SECTION 8 ELECTRICAL PARTS LIST



NOTE:

The components identified by shading and mark **Δ** are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame **etune** marque **Δ** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

When indicating parts by reference number, please include the board name.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

CAPACITORS

MF : μ F, PF : μ F

COILS

MM : mH, UH : μ H

- The components identified by **Δ** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used

| REF. NO. | PART NO. | DESCRIPTION | REMARK | REF. NO. | PART NO. | DESCRIPTION | REMARK |
|----------|---------------|-------------------------------|---------|----------|--------------|------------------|------------|
| | *A-1296-663-A | A BOARD, COMPLETE ***** | | C247 | I-124-360-00 | ELECT 1000MF | 20% 16V |
| | *1-508-766-00 | PIN, CONNECTOR (5MM PITCH) 4P | | C249 | I-102-112-00 | CERAMIC 330PF | 10% 50V |
| | 3-531-576-31 | RIVET (DIA. 3), NYLON | | C250 | I-124-927-11 | ELECT 4.7MF | 20% 50V |
| | *4-341-751-01 | EYELET | | C251 | I-162-117-00 | CERAMIC 100PF | 10% 500V |
| | <CONNECTOR> | | | C252 | I-124-799-11 | ELECT 2.2MF | 20% 160V |
| A1 | I-506-348-99 | PIN, CONNECTOR 3P | | C254 | I-124-799-11 | ELECT 2.2MF | 20% 160V |
| A2 | *1-508-786-00 | PIN, CONNECTOR (5MM PITCH) 2P | | C301 | I-124-902-00 | ELECT 0.47MF | 20% 50V |
| A3 | *1-580-798-11 | CONNECTOR PIN (DY) 6P | | C302 | I-102-961-00 | CERAMIC 27PF | 5% 50V |
| A4 | *1-508-768-00 | PIN, CONNECTOR (5MM PITCH) 6P | | C303 | I-126-101-11 | ELECT 100MF | 20% 16V |
| A5 | I-564-507-11 | PLUG, CONNECTOR 4P | | C305 | I-124-902-00 | ELECT 0.47MF | 20% 50V |
| A6 | *1-564-509-11 | PLUG, CONNECTOR 6P | | C309 | I-124-903-11 | ELECT 1MF | 20% 50V |
| A7 | *1-508-765-00 | PIN, CONNECTOR (5MM PITCH) 3P | | C312 | I-102-951-00 | CERAMIC 15PF | 5% 50V |
| | <CAPACITOR> | | | C314 | I-102-951-00 | CERAMIC 15PF | 5% 50V |
| C101 | I-236-071-11 | ENCAPSULATED COMPONENT 22MF | 20% 50V | C315 | I-126-320-11 | ELECT 10MF | 20% 16V |
| C102 | I-126-233-11 | ELECT 22MF | 20% 50V | C316 | I-102-953-00 | CERAMIC 18PF | 5% 50V |
| C103 | I-102-125-00 | CERAMIC 0.0047MF | 10% 50V | C321 | I-102-129-00 | CERAMIC 0.01MF | 10% 50V |
| C104 | I-236-058-21 | ENCAPSULATED COMPONENT 180PF | 5% 50V | C322 | I-124-907-11 | ELECT 10MF | 20% 50V |
| C105 | I-102-976-00 | CERAMIC 180PF | 5% 50V | C400 | I-126-101-11 | ELECT 100MF | 20% 16V |
| C106 | I-102-976-00 | CERAMIC 180PF | 5% 50V | C401 | I-102-212-00 | CERAMIC 820PF | 10% 500V |
| C107 | I-102-108-00 | CERAMIC 150PF | 10% 50V | C402 | I-124-479-11 | ELECT 330MF | 20% 25V |
| C108 | I-102-108-00 | CERAMIC 150PF | 10% 50V | C403 | I-126-101-11 | ELECT 100MF | 20% 16V |
| C109 | I-124-927-11 | ELECT 4.7MF | 20% 50V | C405 | I-124-477-11 | ELECT 47MF | 20% 16V |
| C110 | I-124-927-11 | ELECT 4.7MF | 20% 50V | C408 | I-126-233-11 | ELECT 22MF | 20% 50V |
| C115 | I-102-074-00 | CERAMIC 0.001MF | 10% 50V | C410 | I-124-903-11 | ELECT 1MF | 20% 50V |
| C117 | I-124-472-11 | ELECT 470MF | 20% 10V | C419 | I-126-101-11 | ELECT 100MF | 20% 16V |
| C118 | I-136-153-00 | FILM 0.01MF | 5% 50V | C420 | I-102-106-00 | CERAMIC 100PF | 10% 50V |
| C119 | I-101-888-00 | CERAMIC 68PF | 5% 50V | C421 | I-102-934-00 | CERAMIC 1PF | 0.25PF 50V |
| C120 | I-106-383-00 | MLAR 0.047MF | 200V | C422 | I-124-903-11 | ELECT 1MF | 20% 50V |
| C121 | I-124-477-11 | ELECT 47MF | 20% 16V | C423 | I-124-903-11 | ELECT 1MF | 20% 50V |
| C122 | I-124-907-11 | ELECT 10MF | 20% 50V | C424 | I-124-903-11 | ELECT 1MF | 20% 50V |
| C126 | I-124-902-00 | ELECT 0.47MF | 20% 50V | C425 | I-136-162-00 | FILM 0.056MF | 5% 50V |
| C132 | I-102-944-00 | CERAMIC 7PF | 1PF 50V | C430 | I-126-101-11 | ELECT 100MF | 20% 16V |
| C133 | I-101-880-00 | CERAMIC 47PF | 5% 50V | C431 | I-124-907-11 | ELECT 10MF | 20% 50V |
| C135 | I-102-074-00 | CERAMIC 0.001MF | 10% 50V | C445 | I-136-157-00 | FILM 0.022MF | 5% 50V |
| C136 | I-124-903-11 | ELECT 1MF | 20% 50V | C451 | I-162-599-12 | CERAMIC 0.0047MF | 20% 400V |
| C137 | I-124-903-11 | ELECT 1MF | 20% 50V | C460 | I-102-114-00 | CERAMIC 470PF | 10% 50V |
| C139 | I-124-477-11 | ELECT 47MF | 20% 16V | C501 | I-126-101-11 | ELECT 100MF | 20% 16V |
| C140 | I-102-121-00 | CERAMIC 0.0022MF | 10% 50V | C502 | I-130-481-00 | MLAR 0.0068MF | 5% 50V |
| C143 | I-136-159-00 | FILM 0.033MF | 5% 50V | C503 | I-124-903-11 | ELECT 1MF | 20% 50V |
| C144 | I-136-157-00 | FILM 0.022MF | 5% 50V | C504 | I-102-106-00 | CERAMIC 100PF | 10% 50V |
| C190 | I-126-101-11 | ELECT 100MF | 20% 16V | C505 | I-130-481-00 | NYLAR 0.0068MF | 5% 50V |
| C201 | I-126-101-11 | ELECT 100MF | 20% 16V | C507 | I-102-114-00 | CERAMIC 470PF | 10% 50V |
| C204 | I-102-121-00 | CERAMIC 0.0022MF | 10% 50V | C508 | I-101-006-00 | CERAMIC 0.047MF | 50V |
| | | | | C509 | I-101-006-00 | CERAMIC 0.047MF | 50V |
| C241 | I-124-907-11 | ELECT 10MF | 20% 50V | C510 | I-130-481-00 | MLAR 0.0068MF | 5% 50V |
| | | | | C511 | I-136-159-00 | FILM 0.033MF | 5% 50V |
| | | | | C512 | I-124-925-11 | ELECT 2.2MF | 20% 50V |
| | | | | C513 | I-124-903-11 | ELECT 1MF | 20% 50V |
| | | | | C514 | I-124-907-11 | ELECT 10MF | 20% 50V |
| | | | | C515 | I-124-464-11 | ELECT 0.22MF | 20% 50V |
| | | | | C516 | I-124-477-11 | ELECT 47MF | 20% 16V |

A

Les composants identifiés par
une trame et une marque Δ
sont critiques pour la sécurité
Ne les remplacer que par une
pièce portant le numéro spécifié.

The components identified by
shading and mark Δ are critical
for safety
Replace only with part number
specified.

| REF. NO. | PART NO. | DESCRIPTION | REMARK | REF. NO. | PART NO. | DESCRIPTION | REMARK |
|------------|---------------------------|--------------------------|---------------|--|---------------------------|-----------------------------|------------------|
| C517 | I-126-233-11 | ELECT | 22MF 20% | 50V | D113 | 8-719-911-19 | DIODE 1SS119 |
| C518 | I-102-125-00 | CERAMIC | 0.0047MF 10% | 50V | D114 | 8-719-911-19 | DIODE 1SS119 |
| C519 | I-123-024-21 | ELECT | 33MF 160V | D115 | g-719-109-74 | DIODE RD4.3ES-B | |
| C520 | A I-162-115-51 | CERAMIC | 330PF 10% | 2KV | D126 | 8-719-911-19 | DIODE 1SS119 |
| C521 | I-106-369-00 | MYLAR- | 0.012MF 10% | 100V | D127 | 8-719-911-19 | DIODE 1SS119 |
| C522 | A I-136-965-11 | FILM | 0.0055MF 3% | 2KV | D128 | 8-719-911-19 | DIODE 1SS119 |
| C523 | I-124-799-11 | ELECT | 2.2MF 20% | 160V | D157 | 8-719-911-19 | DIODE 1SS119 |
| C525 | I-124-927-11 | ELECT | 4.7MF 20% | 50V | D159 | 8-719-911-19 | DIODE 1SS119 |
| C526 | A I-162-134-51 | CERAMIC | 470PF 10% | 2KV | D241 | 8-719-110-17 | DIODE RD10ES-B2 |
| C528 | I-136-969-11 | FILM | 0.27MF 5% | 200V | D245 | 8-719-110-33 | DIODE RD12ES-B3 |
| C529 | I-162-114-00 | CERAMIC | 0.0047MF 2KV | | D251 | a-719-911-19 | DIODE 1SS119 |
| C530 | I-124-927-11 | ELECT | 4.7MF 20% | 50V | D301 | 8-719-911-19 | DIODE 1SS119 |
| C531 | I-124-122-11 | ELECT | 100MF 20% | 50V | D317 | S-719-911-19 | DIODE 1SS119 |
| C533 | I-102-112-00 | CERAMIC | 330PF 10% | 50V | D401 | 8-719-300-33 | DIODE RU-3AM |
| C534 | I-162-117-00 | CERAMIC | 100PF 10% | 500V | D402 | 8-719-911-19 | DIODE 1SS119 |
| C535 | I-106-367-00 | MYLAR | 0.01MF 10% | 200V | 0403 | 8-719-911-19 | DIODE 1SS119 |
| C536 | I-124-046-00 | ELECT | 10MF 20% | 160V | D405 | 8-719-110-33 | DIODE RD12ES-B3 |
| C537 | A I-102-244-91 | CERAMIC | 220PF 10% | 500V | 0408 | 8-719-110-14 | DIODE RD9.1ES-B3 |
| C538 | A I-102-212-91 | CERAMIC | 820PF 10% | 500V | D501 | 8-719-911-55 | DIODE U05G |
| C539 | I-124-122-11 | ELECT | 100MF 20% | 50V | D502 | 8-719-109-89 | DIODE RD5.6ES-B2 |
| C541 | I-102-244-00 | CERAMIC | 220PF 10% | 500V | D504 | 8-719-911-55 | DIODE U05G |
| C542 | I-106-371-00 | MYLAR | 0.015MF 10% | 100V | D505 | 8-719-911-55 | DIODE U05G |
| C543 | I-124-122-11 | ELECT | 100MF 20% | 50V | D508 | 8-719-300-33 | DIODE RU-3AM |
| C544 | I-124-119-00 | ELECT | 330MF 20% | 16V | D511 | A 8-719-961-03 | DIODE RGP10G |
| C545 | I-124-119-00 | ELECT | 330MF 20% | 16V | D512 | t-719-901-94 | DIODE V19CS |
| C547 | I-102-212-00 | CERAMIC | 820PF 10% | 500V | D513 | 8-719-976-64 | DIODE RGP02-17 |
| C548 | I-102-212-00 | CERAMIC | 820PF 10% | 500V | D514 | A 8-719-961-03 | DIODE RGP10G |
| C549 | I-106-369-00 | MYLAR | 0.012MF 20% | 200V | D561 | E-719-911-19 | DIODE 1SS119 |
| C551 | I-102-212-00 | CERAMIC | 820PF 10% | 500V | D601 | A 8-719-801-70 | DIODE TVR4J |
| C552 | I-124-478-11 | ELECT | 100MF 20% | 25V | D602 | A 8-719-801-70 | DIODE TVR4J |
| C555 | I-136-165-00 | FILM | 0.1MF 5% | 50V | D603 | A 8-719-801-70 | DIODE TVR4J |
| C557 | I-124-925-11 | ELECT | 2.2MF 20% | 50V | D604 | A 8-719-801-70 | DIODE TVR4J |
| C558 | I-124-925-11 | ELECT | 2.2MF 20% | 50V | D605 | 8-719-120-53 | DIODE RD5.1ES-L2 |
| C561 | I-124-925-11 | ELECT | 2.2MF 20% | 50V | D606 | 8-719-911-19 | DIODE 1SS119 |
| C562 | I-126-101-11 | ELECT | 100MF 20% | 16V | D607 | 8-719-304-63 | DIODE RM11C |
| C570 | I-124-903-11 | ELECT | 1MF 20% | 50V | D608 | B-719-304-63 | DIODE RM11C |
| C571 | I-124-903-11 | ELECT | 1MF 20% | 50V | D609 | 8-719-911-55 | DIODE U05G |
| C572 | I-124-903-11 | ELECT | 1MF 20% | 50V | | | |
| C573 | I-124-903-11 | ELECT | 1MF 20% | 50V | | | |
| C601 | A I-108-745-52 | MYLAR | 0.22MF 20% | 125V | | | |
| C602 | I-125-182-00 | ELECT | 330MF 20% | 200V | | | |
| C603 | I-161-830-00 | CERAMIC | 0.0047MF 500V | | | | |
| C604 | I-161-830-00 | CERAMIC | 0.0047MF 500V | | | | |
| C605 | I-123-948-00 | ELECT | 22MF 20% | 250V | | | |
| C606 | I-126-101-11 | ELECT | 100MF 20% | 16V | | | |
| C607 | I-124-472-11 | ELECT | 470MF 20% | 10V | | | |
| C616 | I-124-046-00 | ELECT | 10MF 20% | 160V | | | |
| C617 | I-124-046-00 | ELECT | 10MF 20% | 160V | | | |
| <NETWORK> | | | | <FUSE> | | | |
| CP102 | I-236-300-11 | NETWORK, C | | F601 | A I-532-748-11 | FUSE, GLASS TUBE 6.3A/125V | |
| CP103 | I-236-490-11 | NETWORK, RES, THICK FILM | | | I-533-223-11 | CLIP, FUSE; F601 | |
| CP104 | I-236-301-11 | NETWORK, C | | F602 | A I-532-741-11 | FUSE, GLASS TUBE 1.25A/125V | |
| CP105 | I-236-301-11 | NETWORK, C | | | I-533-223-11 | CLIP, FUSE; F602 | |
| CP107 | I-236-730-11 | NETWORK, C | | | | | |
| CP108 | I-236-479-11 | NETWORK, C | | | | | |
| CP109 | I-236-524-11 | NETWORK, C | | | | | |
| CP117 | I-236-078-11 | NETWORK, RES, THICK FILM | | | | | |
| <DIODE> | | | | <IC> | | | |
| D101 | 8-719-123-25 | DIODE RD33ES-L3 | | IC101 | 8-759-636-45 | IC M34302M8-514SP | |
| D103 | 1-808-919-11 | LED UNIT (LEDU-9) | | IC102 | 8-759-748-69 | IC CAT59C11HP | |
| | | | | IC103 | 8-749-922-13 | IC KEY-COOSV-F | |
| | | | | IC104 | 8-759-104-05 | IC UPD6325C | |
| | | | | IC105 | 8-759-924-12 | IC LM7805CT | |
| | | | | IC201 | 8-759-929-62 | IC LM7812CT | |
| | | | | IC301 | A 8-752-031-72 | IC CXA1013AS | |
| | | | | IC401 | A 8-719-951-28 | ISOLATOR QCPL-3209 | |
| | | | | IC402 | A 8-719-936-96 | PHOTO COUPLER PC817-B | |
| | | | | IC403 | 8-759-000-49 | IC MC14066BCP | |
| | | | | IC501 | 8-759-994-51 | IC KA2131 | |
| | | | | IC601 | A 8-749-921-10 | IC STR-D3035 | |
| | | | | | *4-341-752-01 | EYELET; IC601 | |
| <IF BLOCK> | | | | IF201 1-464-756-21 IF BLOCK (IFF-450A) | | | |

The components identified by shading and mark Δ are critical for safety
Replace only with part number specified

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié

A

| REF. NO. | PART NO. | DESCRIPTION | REMARK | REF. NO. | PART NO. | DESCRIPTION | REMARK |
|---------------|-----------------------|----------------------------|--------|----------|---------------|--------------------|--------|
| <COIL> | | | | | | | |
| L101 | I-410-476-11 | INDUCTOR 33UH | | R014 | I-249-421-11 | CARBON 2.2K 5% | 1/4W |
| L104 | I-410-476-11 | INDUCTOR 33UH | | R015 | I-249-421-11 | CARBON 2.2K 5% | 1/4W |
| L105 | I-410-504-11 | INDUCTOR 3.9UH | | R016 | I-249-421-11 | CARBON 2.2K 5% | 1/4W |
| L106 | I-408-404-00 | INDUCTOR 3.9UH | | R017 | I-249-421-11 | CARBON 2.2K 5% | 1/4W |
| L203 | I-408-408-00 | INDUCTOR 8.2UH | | R018 | I-249-416-11 | CARBON 820 5% | 1/4W |
| L301 | I-408-411-00 | INDUCTOR 15UH | | R019 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| L302 | I-408-418-00 | INDUCTOR 56UH | | R020 | I-249-429-1 1 | CARBON 10K 5% | 1/4W |
| L402 | I-410-476-11 | INDUCTOR 33UH | | R021 | I-249-434-11 | CARBON 27K 5% | 1/4W |
| L501 | I-422-613-11 | COIL, AIR CORE | | R026 | I-249-421-11 | CARBON 2.2K 5% | 1/4W |
| L502 | I-410-665-31 | INDUCTOR 15UH | | R027 | I-249-421-11 | CARBON 2.2K 5% | 1/4W |
| L504 | Δ I-424-320-11 | COIL, CHOKER 33UH | | R028 | a-249-421-11 | CARBON 2.2K 5% | 1/4W |
| L506 | Δ I-460-046-11 | COIL, HORIZONTAL LINEARITY | | R029 | I-249-405-11 | CARBON 100 5% | 1/4W |
| L513 | Δ I-410-669-41 | INDUCTOR 33UH | | R030 | I-249-405-11 | CARBON 100 5% | 1/4W |
| L515 | Δ I-412-045-11 | INDUCTOR 2.2MH | | R034 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| L520 | Δ I-410-671-41 | INDUCTOR 47UH | | R035 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| L601 | Δ I-410-413-21 | INDUCTOR 3.3UH | | R036 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| L602 | Δ I-410-413-21 | INDUCTOR 3.3UH | | R037 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| <TRANSISTOR> | | | | R040 | I-249-431-11 | CARBON 15K 5% | 1/4W |
| Q109 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | R044 | I-249-413-11 | CARBON 470 5% | 1/4W |
| Q110 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R103 | I-215-924-00 | METAL OXIDE 15K 5% | 3W F |
| Q111 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | R113 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| Q113 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R117 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| Q114 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R120 | I-249-433-1 1 | CARBON 22K 5% | 1/4W |
| Q115 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R122 | I-249-433-11 | CARBON 22K 5% | 1/4W |
| Q116 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R123 | I-249-433-11 | CARBON 22K 5% | 1/4W |
| Q118 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R124 | I-249-425-11 | CARBON 4.7K 5% | 1/4W |
| Q120 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R125 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| Q121 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R126 | I-249-433-11 | CARBON 22K 5% | 1/4W |
| Q122 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R127 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| Q241 | 8-729-920-92 | TRANSISTOR 2SD2096-BF | | R128 | I-249-411-11 | CARBON 330 5% | 1/4W |
| Q250 | 8-729-924-83 | TRANSISTOR 2SD1812-Q | | R129 | I-249-411-11 | CARBON 330 5% | 1/4W |
| Q251 | 8-729-924-86 | TRANSISTOR 2SB1212-P | | R136 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| Q252 | 8-729-924-82 | TRANSISTOR 2SD1812-P | | R139 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| Q301 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R140 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| Q401 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R142 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| Q402 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R143 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| Q403 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | R146 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| Q404 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R148 | I-249-425-11 | CARBON 4.7K 5% | 1/4W |
| Q405 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | R149 | I-249-429-1 1 | CARBON 10K 5% | 1/4W |
| Q407 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | R150 | I-249-437-11 | CARBON 47K 5% | 1/4W |
| Q408 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R151 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| Q409 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R152 | I-249-437-11 | CARBON 47K 5% | 1/4W |
| Q410 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | R153 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| Q411 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R154 | I-247-895-00 | CARBON 470K 5% | 1/4W |
| Q460 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R155 | I-249-439-11 | CARBON 68K 5% | 1/4W |
| Q501 | 8-729-140-50 | TRANSISTOR 2SC3209LK | | R156 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| Q502 | 8-729-231-95 | TRANSISTOR 2SD2089-LBSONY | | R158 | I-247-895-00 | CARBON 470K 5% | 1/4W |
| *4-341-752-01 | EYELET: Q502 | | | R160 | I-249-429-11 | CARBON 47K 5% | 1/4W |
| Q561 | 8-729-200-17 | TRANSISTOR 2SA1091-0 | | R172 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| Q562 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | | R175 | I-249-469-11 | CARBON 100K 5% | 1/4W |
| Q601 | 8-729-209-03 | TRANSISTOR 2SC2551-RO | | R176 | I-249-441-11 | CARBON 100K 5% | 1/4W |
| <RESISTOR> | | | | R180 | I-249-426-11 | CARBON 5.6K 5% | 1/4W |
| R001 | I-249-421-11 | CARBON 2.2K 5% | 1/4W | R182 | I-249-415-11 | CARBON 680 5% | 1/4W |
| R002 | I-249-413-11 | CARBON 470 5% | 1/4W | R185 | I-249-429-11 | CARBON 10K 5% | 1/4W |
| R004 | I-249-413-11 | CARBON 470 5% | 1/4W | R186 | I-249-425-11 | CARBON 4.7K 5% | 1/4W |
| R005 | I-249-413-11 | CARBON 470 5% | 1/4W | R187 | I-249-413-11 | CARBON 470 5% | 1/4W |
| R008 | I-249-425-11 | CARBON 4.7K 5% | 1/4W | R188 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| | | | | R190 | I-249-422-11 | CARBON 2.7K 5% | 1/4W |
| | | | | R191 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| | | | | R192 | I-249-417-11 | CARBON 1K 5% | 1/4W |
| | | | | R193 | I-249-421-11 | CARBON 2.2K 5% | 1/4W |
| | | | | R194 | I-249-429-11 | CARBON 10K 5% | 1/4W |

A

Les composants identifiés par
une trame et une marque Δ
sont critiques pour la sécurité
Ne les remplacer que par une
pièce portant le numéro spécifié.

The components identified by
shading and mark Δ are critical
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Replace only with part number
specified.

| REF. NO. | PART NO. | DESCRIPTION | REMARK | REF. NO. | PART NO. | DESCRIPTION | REMARK |
|----------|---------------|-------------|---------------|----------|--------------|-------------|----------------|
| R195 | 1-249-429-11 | CARBON | 10K 5% 1/4W | R427 | 1-247-883-00 | CARBON | 150K 5% 1/4W |
| R201 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R428 | 1-249-435-11 | CARBON | 33K 5% 1/4W |
| R202 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R429 | 1-249-421-11 | CARBON | 2.2K 5% 1/4W |
| R204 | 1-249-435-11 | CARBON | 33K 5% 1/4W | R431 | 1-249-421-11 | CARBON | 2.2K 5% 1/4W |
| R207 | 1-249-435-11 | CARBON | 33K 5% 1/4W | R432 | 1-249-420-11 | CARBON | 1.8K 5% 1/4W |
| R241 | 1-216-472-00 | METAL OXIDE | 39 5% 3W F | R433 | 1-247-887-00 | CARBON | 220K 5% 1/4W |
| R242 | 1-249-413-11 | CARBON | 470 5% 1/4W | R434 | 1-249-415-11 | CARBON | 680 5% 1/4W |
| R243 | 1-249-429-11 | CARBON | 10K 5% 1/4W | R435 | 1-202-730-00 | SOLID | 8.2M 10% 1/2W |
| R245 | 1-249-407-11 | CARBON | 150 5% 1/4W F | R436 | 1-249-423-11 | CARBON | 3.3K 5% 1/4W |
| R250 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R437 | 1-249-429-11 | CARBON | 10K 5% 1/4W |
| R251 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R438 | 1-249-417-11 | CARBON | 1K 5% 1/4W |
| R252 | 1-247-881-00 | CARBON | 120K 5% 1/4W | R439 | 1-249-429-11 | CARBON | 10K 5% 1/4W |
| R253 | 1-249-492-11 | CARBON | 47K 5% 1/2W | R440 | 1-249-417-11 | CARBON | 1K 5% 1/4W |
| R255 | 1-216-426-11 | METAL OXIDE | 82 5% 1W F | R441 | 1-249-421-11 | CARBON | 2.2K 5% 1/4W |
| R301 | 1-21 5-472-00 | METAL | 130K 1% 1/4W | R445 | 1-249-423-11 | CARBON | 3.3K 5% 1/4W |
| R302 | 1-249-438-11 | CARBON | 56K 5% 1/4W | R448 | 1-249-421-11 | CARBON | 2.2K 5% 1/4W |
| R304 | 1-247-889-00 | CARBON | 270K 5% 1/4W | R451 | 1-202-727-00 | SOLID | 4.7M 10% 1/2W |
| R305 | 1-249-440-11 | CARBON | 82K 5% 1/4W | R460 | 1-249-417-11 | CARBON | 1K 5% 1/4W |
| R306 | 1-249-437-11 | CARBON | 47K 5% 1/4W | R461 | 1-249-419-11 | CARBON | 1.5K 5% 1/4W |
| R307 | 1-249-429-11 | CARBON | 10K 5% 1/4W | R501 | 1-215-920-11 | METAL OXIDE | 3.3K 5% 3W F |
| R308 | 1-249-411-11 | CARBON | 330 5% 1/4W | R502 | 1-216-484-00 | METAL OXIDE | 3.9K 5% 3W F |
| R309 | 1-249-411-11 | CARBON | 330 5% 1/4W | R503 | 1-249-405-11 | CARBON | 100 5% 1/4W |
| R310 | 1-249-411-11 | CARBON | 330 5% 1/4W | R504 | 1-249-414-11 | CARBON | 560 5% 1/4W |
| R311 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R505 | 1-215-472-00 | METAL | 130K 1% 1/4W |
| R312 | 1-249-429-11 | CARBON | 10K 5% 1/4W | R506 | 1-249-405-11 | CARBON | 100 5% 1/4W |
| R315 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R507 | 1-249-431-11 | CARBON | 15K 5% 1/4W |
| R316 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R508 | 1-249-433-11 | CARBON | 22K 5% 1/4W |
| R317 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R509 | 1-249-434-11 | CARBON | 27K 5% 1/4W |
| R318 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R510 | 1-249-422-11 | CARBON | 2.7K 5% 1/4W |
| R319 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R512 | 1-249-411-11 | CARBON | 310 5% 1/4W |
| R320 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R513 | 1-215-472-00 | METAL | 130K 1% 1/4W |
| R323 | 1-249-427-11 | CARBON | 6.8K 5% 1/4W | R514 | 1-215-457-00 | METAL | 33K 1% 1/4W |
| R324 | 1-249-415-11 | CARBON | 680 5% 1/4W | R515 | 1-249-427-11 | CARBON | 6.8K 5% 1/4W |
| R325 | 1-249-405-11 | CARBON | 100 5% 1/4W | R516 | 1-249-428-11 | CARBON | 8.2K 5% 1/4W |
| R326 | 1-249-405-11 | CARBON | 100 5% 1/4W | R517 | 1-249-417-11 | CARBON | 1K 5% 1/4W |
| R331 | 1-249-424-11 | CARBON | 3.9K 5% 1/4W | R518 | 1-249-425-11 | CARBON | 4.7K 5% 1/4W F |
| R341 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R519 | 1-249-405-11 | CARBON | 100 5% 1/4W |
| R342 | 1-249-421-11 | CARBON | 2.2K 5% 1/4W | R520 | 1-247-903-00 | CARBON | 1M 5% 1/4W |
| R366 | 1-249-430-11 | CARBON | 12K 5% 1/4W | R521 | 1-249-449-11 | CARBON | 1.5 5% 1/4W F |
| Fi367 | 1-249-436-11 | CARBON | 39K 5% 1/4W | R522 | 1-215-445-00 | METAL | 10K 1% 1/4W |
| R401 | 1-249-405-11 | CARBON | 100 5% 1/4W | R523 | 1-249-425-11 | CARBON | 4.7K 5% 1/4W F |
| R402 | 1-249-412-11 | CARBON | 390 5% 1/4W F | R524 | 1-216-353-00 | METAL OXIDE | 2.2 5% 1W F |
| R403 | 1-249-441-11 | CARBON | 100K 5% 1/4W | R525 | 1-215-922-51 | METAL OXIDE | 6.8K 5% 3W F |
| R404 | 1-249-441-11 | CARBON | 100K 5% 1/4W | R526 | 1-249-437-11 | CARBON | 47K 5% 1/4W |
| R405 | 1-249-404-00 | CARBON | 82 5% 1/4W | R527 | 1-249-431-11 | CARBON | 15K 5% 1/4W |
| R406 | 1-249-419-11 | CARBON | 1.5K 5% 1/4W | R529 | 1-249-423-11 | CARBON | 3.3K 5% 1/4W F |
| R407 | 1-249-405-11 | CARBON | 100 5% 1/4W | R530 | 1-214-917-00 | METAL | 150K 1% 1/2W |
| R409 | 1-249-425-11 | CARBON | 4.7K 5% 1/4W | R531 | 1-247-887-00 | CARBON | 220K 5% 1/4W |
| R410 | 1-249-407-11 | CARBON | 150 5% 1/4W | R532 | 1-249-438-11 | CARBON | 56K 5% 1/4W |
| R411 | 1-216-428-00 | METAL OXIDE | 180 5% 1W F | R534 | 1-216-454-11 | METAL OXIDE | 390 5% 2W F |
| R413 | 1-249-432-11 | CARBON | 18K 5% 1/4W | R535 | 1-216-452-11 | METAL OXIDE | 180 5% 2W F |
| R414 | 1-249-429-11 | CARBON | 10K 5% 1/4W | R536 | 1-216-452-11 | METAL OXIDE | 180 5% 2W F |
| R415 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R537 | 1-249-421-11 | CARBON | 2.2K 5% 1/4W F |
| R416 | 1-247-883-00 | CARBON | 150K 5% 1/4W | R538 | 1-216-427-00 | METAL OXIDE | 120 5% 1W F |
| R417 | 1-247-883-00 | CARBON | 150K 5% 1/4W | R539 | 1-247-706-11 | CARBON | 330 5% 1/4W |
| R418 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R540 | 1-249-429-11 | CARBON | 10K 5% 1/4W |
| R419 | 1-249-421-11 | CARBON | 2.2K 5% 1/4W | R541 | 1-249-434-11 | CARBON | 27K 5% 1/4W |
| R420 | 1-249-433-11 | CARBON | 22K 5% 1/4W | R542 | 1-249-431-11 | CARBON | 15K 5% 1/4W |
| R421 | 1-249-406-11 | CARBON | 120 5% 1/4W | R543 | 1-216-354-11 | METAL OXIDE | 2.7 5% 1W F |
| R422 | 1-249-419-11 | CARBON | 1.5K 5% 1/4W | R544 | 1-249-416-11 | CARBON | 820 5% 1/4W |
| R423 | 1-249-405-11 | CARBON | 100 5% 1/4W | R545 | 1-249-425-11 | CARBON | 4.7K 5% 1/4W |
| R424 | 1-249-417-11 | CARBON | 1K 5% 1/4W | R547 | 1-249-413-11 | CARBON | 470 5% 1/4W F |
| R425 | 1-249-409-11 | CARBON | 220 5% 1/4W | R548 | 1-247-696-11 | CARBON | 47 5% 1/4W F |
| R426 | 1-249-433-11 | CARBON | 22K 5% 1/4W | | | | |

The components identified by shading and mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by \square in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

| REF. NO. | PART NO. | DESCRIPTION | REMARK |
|----------------------------|-----------------------|-------------------------------------|--------|
| R549 | Δ 1-215-881-51 | METAL OXIDE 15 5% 2W | F |
| R554 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R555 | 1-249-495-11 | CARBON 82K 5% 1/2W | |
| R556 | 1-249-411-11 | CARBON 330 5% 1/4W | |
| R557 | 1-249-418-11 | CARBON 1.2K 5% 1/4W | |
| R558 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | |
| R560 | 1-249-411-11 | CARBON 330 5% 1/4W | |
| R561 | 1-216-390-11 | METAL OXIDE 1.2K 5% 3W | F |
| R562 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R563 | 1-247-885-00 | CARBON 180K 5% 1/4W | |
| R564 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R565 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R566 | 1-249-425-11 | CARBON 4.7K 5% 1/4W | |
| R567 | 1-215-430-00 | METAL 2.4K 1% 1/4W | |
| Δ R568 | Δ | METAL | 1/4W |
| R569 | 1-247-883-00 | CARBON 150K 5% 1/4W | |
| R570 | 1-249-443-11 | CARBON 0.47 5% 1/4W | F |
| R571 | 1-216-377-11 | METAL OXIDE 4.7 5% 2W | F |
| R601 | Δ 1-202-719-91 | SOLID 1M 10% 1/2W | |
| R602 | Δ 1-205-707-12 | WIREWOUND 2.2 5% 10W | F |
| R603 | 1-249-496-11 | CARBON 100K 5% 1/2W | |
| R606 | 1-249-413-11 | CARBON 470 5% 1/4W | |
| R609 | 1-207-474-00 | WIREWOUND 8.2 10% 1/2W | |
| R610 | Δ 1-205-907-11 | WIREWOUND 200 5% 20W | F |
| R611 | 1-215-872-11 | METAL OXIDE 3.3K 5% 1W | F |
| R612 | 1-215-921-11 | METAL OXIDE 4.7K 5% 3W | F |
| R613 | 1-215-921-11 | METAL OXIDE 4.7K 5% 3W | F |
| R615 | Δ 1-216-463-51 | METAL OXIDE 12K 5% 2W | F |
| R616 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | F |
| R617 | 1-249-401-11 | CARBON 47 5% 1/4W | F |
| R618 | 1-247-895-00 | CARBON 470K 5% 1/4W | |
| (VARIABLE RESISTOR) | | | |
| RV101 | 1-238-015-11 | RES, ADJ, CARBON 4.7K | |
| RV302 | 1-238-016-11 | RES, ADJ, CARBON 10K | |
| RV303 | 1-238-019-11 | RES, ADJ, CARBON 47K | |
| RV401 | 1-238-012-11 | RES, ADJ, CARBON 1K | |
| RV402 | 1-238-012-11 | RES, ADJ, CARBON 1K | |
| RV501 | 1-228-728-00 | RES, ADJ, CERAMIC CARBON 100K | |
| RV502 | 1-238-020-11 | RES, ADJ, CARBON 100K | |
| RV503 | 1-238-014-11 | RES, ADJ, CARBON 3.3K | |
| <RELAY> | | | |
| RY601A | 1-515-573-13 | RELAY, POWER | |
| <SWITCH> | | | |
| S101 | Δ 1-571-532-23 | SWITCH, TACTIL (POWER) | |
| S102 | 1-571-532-21 | SWITCH, TACTIL | |
| S103 | 1-571-532-21 | SWITCH, TACTIL | |
| S104 | 1-571-532-21 | SWITCH, TACTIL | |
| S105 | 1-571-532-21 | SWITCH, TACTIL | |
| S106 | 1-571-532-21 | SWITCH, TACTIL | |
| S501 | 1-554-186-00 | SWITCH, LEVER | |
| <TRANSFORMER> | | | |
| T251 | Δ 1-427-479-11 | TRANSFORMER (SOT) | |
| T401 | Δ 1-421-857-11 | TRANSFORMER, FERRITE | |
| T501 | Δ 1-437-195-13 | TRANSFORMER, HORIZONTAL DRIVE | |
| T503 | Δ 1-439-483-11 | TRANSFORMER ASSY, FLYBACK (NX-1710) | |
| *4-341-752-01 EYELET; T503 | | | |

| REF. NO. | PART NO. | DESCRIPTION | REMARK |
|--|-----------------------|----------------------------------|--------|
| T601 | Δ 1-421-935-21 | L.F.T | |
| <THERMISTOR> | | | |
| THP601A | 1-800-686-33 | THERMISTOR (POSITIVE) | |
| <TUNER> | | | |
| TU101A | 1-465-371-11 | TUNER, ET (BTP-RA401) (USA ONLY) | |
| <CRYSTAL> | | | |
| X101 | 1-577-082-11 | VIBRATOR, CERAMIC | |
| X301 | 1-567-505-11 | OSCILLATOR, CRYSTAL | |
| ***** | | | |
| *A-1331-045-A C BOARD, COMPLETE | | | |
| ***** | | | |
| *4-374-912-01 COVER (MAIN), CV VOL | | | |
| *4-374-913-01 COVER (REAR LID), CV VOL | | | |
| <CONNECTOR> | | | |
| C1 | *1-506-371-00 | PIN, CONNECTOR 2P | |
| C2 | *1-508-786-00 | PIN, CONNECTOR (5MM PITCH) 2P | |
| C3 | *1-564-509-11 | PLUG, CONNECTOR 6P | |
| C4 | *1-508-765-00 | PIN, CONNECTOR (5MM PITCH) 3P | |
| <CAPACITOR> | | | |
| C702 | 1-101-880-00 | CERAMIC 47PF 5% 50V | |
| C703 | 1-101-880-00 | CERAMIC 47PF 5% 50V | |
| C704 | 1-101-880-00 | CERAMIC 47PF 5% 50V | |
| C705 | 1-162-116-00 | CERAMIC 680PF 10% 2KV | |
| C706 | 1-136-601-11 | FILM 0.01MF 10% 630V | |
| <JACK> | | | |
| J701 | 1-526-819-11 | SOCKET, PICTURE TUBE | |
| <COIL> | | | |
| L701 | 1-410-520-11 | INDUCTOR 82UH | |
| L702 | 1-410-520-11 | INDUCTOR 82UH | |
| L703 | 1-410-520-11 | INDUCTOR 82UH | |
| L704 | 1-408-424-00 | INDUCTOR 180UH | |
| <TRANSISTOR> | | | |
| Q701 | 8-729-906-39 | TRANSISTOR 2SC3271-P | |
| Q702 | 8-729-906-39 | TRANSISTOR 2SC3271-P | |
| Q703 | a-729-906-39 | TRANSISTOR 2SC3271-P | |
| <RESISTOR> | | | |
| R701 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | |
| R703 | 1-249-412-11 | CARBON 390 5% 1/4W | |
| R704 | 1-249-422-11 | CARBON 2.7K 5% 1/4W | |
| R705 | 1-202-824-00 | SOLID 3.3K 10% 1/2W | |
| R706 | 1-215-899-11 | METAL OXIDE 15K 5% 2W | F |
| R707 | 1-249-418-11 | CARBON 1.2K 5% 1/4W | |
| R708 | 1-249-413-11 | CARBON 470 5% 1/4W | |

C

Les composants identifiés par
une trame et une marque Δ
sont critiques pour la sécurité
Ne les remplacer que par une
pièce portant le numéro spécifié.

The components identified by
shading and mark Δ are critical
for safety
Replace only with part number
specified.

| REF. NO. | PART NO. | DESCRIPTION | REMARK |
|----------|--------------|-----------------------|--------|
| R709 | I-249-415-11 | CARBON 680 5% 1/4W | I |
| R710 | I-249-422-11 | CARBON 2.7K 5% 1/4W | |
| R711 | I-202-824-00 | SOLID 3.3K 10% 1/2W | |
| R712 | I-215-899-11 | METAL OXIDE 15K 5% 2W | F |
| R713 | I-249-418-11 | CARBON 1.2K 5% 1/4W | |
| R714 | I-249-413-11 | CARBON 470 5% 1/4W | |
| R715 | I-249-415-11 | CARBON 680 5% 1/4W | |
| R716 | I-249-422-11 | CARBON 2.7K 5% 1/4W | |
| R717 | I-202-824-00 | SOLID 3.3K 10% 1/2W | |
| R718 | I-215-899-11 | METAL OXIDE 15K 5% 2W | F |
| R719 | I-202-842-11 | SOLID 220K 10% 1/2W | |
| R720 | I-202-719-00 | SOLID 1M 10% 1/2W | |
| R721 | I-216-349-00 | METAL OXIDE 1 5% 1W | F |
| R722 | I-202-848-00 | SOLID 680K 10% 1/2W | |
| R723 | I-202-838-00 | SOLID 100K 10% 1/2W | |

<VARIABLE RESISTOR>

| | | | |
|-------|--------------|------------------------------|--|
| RV701 | I-228-723-00 | RES, ADJ, CERAMC CARBON 4.7K | |
| RV702 | I-228-722-00 | RES, ADJ, CERAMC CARBON 3.3K | |
| RV703 | I-228-723-00 | RES, ADJ, CERAMC CARBON 4.7K | |
| RV704 | I-228-722-00 | RES, ADJ, CERAMC CARBON 3.3K | |
| RV705 | I-228-723-00 | RES, ADJ, CERAMC CARBON 4.7K | |
| RV706 | I-230-641-11 | RES, ADJ, METAL GLAZE 2.2M | |
| RV707 | I-230-641-11 | RES, ADJ, METAL GLAZE 2.2% | |
| RV708 | I-230-619-11 | RES, ADJ, METAL GLAZE 110M | |
| RV709 | I-228-725-00 | RES, ADJ, CERAMC CARBON 22K | |

MISCELLANEOUS

1-452-032-00 MAGNET, DISK; 10MM ϕ
 1-452-094-00 MAGNET, ROTATABLE DISK; 15MM ϕ
 1-452-277-00 MAGNET, BMC

Δ 1-537-273-11 TERMINAL ASSY, ANTENNA (USA ONLY)
 Δ 1-537-367-11 TERMINAL ASSY, ANTENNA (CND ONLY)
 Δ 1-559-396-21 CORD, POWER

L901 Δ 1-426-146-71 COIL, DEMAGNETIZATION
 L904 Δ 1-451-234-00 DEFLECTION YOKE (Y14NDA)
 SP901 1-544-499-11 SPEAKER
 V901 Δ 8-735-555-75 PICTURE TUBE (A34JBU10X)

ACCESSORIES AND PACKING MATERIALS

| PART NO. | DESCRIPTION | REMARK |
|---------------|---------------------------------|--------|
| 1-417-182-1 | 1 CONVERTER (EAC-25) (CND ONLY) | |
| I-501-372-41 | ANTENNA, TELESCOPIC | |
| 1-562-443-11 | CONNECTOR, ANTENNA (USA ONLY) | |
| 3-751-225-21 | MANUAL, INSTRUCTION | |
| 3-751-225-31 | MANUAL, INSTRUCTION (CND ONLY) | |
| *4-337-201-02 | BAG, PROTECTION | |
| x4-393-161-01 | CUSHION (UPPER) (ASSY) | |
| *4-393-162-01 | CUSHION (LOWER) (ASSY) | |
| *4-393-167-01 | INDIVIDUAL CARTON | |

REMOTE COMMANDER

A-1470-921-A REMOTE COMMANDER (RM-781)
 4-394-031-01 COVER, BATTERY (FOR RM-781)